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CURRENT CONSIDERATIONS OF TONSILLECTOMY; WITH SPECIAL REFERENCE TO POSTOPERATIVE BLEEDING *

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In a symposium on tonsil and adenoid surgery recently published in the *Journal of the American Medical Association*, Badger,[1] by way of Mollison,[2] quoted an eighteenth century commentary on the status of tonsillar surgery at that time. The pronouncement was by Samuel Sharp, then surgeon to Guy's Hospital, and it was to the effect that excision of the tonsils was "neither dreadful in the doing nor melancholy in the event." Since Badger's concern was chiefly with the historic aspects of the operation, he did not pursue the implications of Sharp's remark. A number of observers, however, have pointed out that curiously little attention has been paid in the literature to the possibility that tonsillectomy may indeed be "melancholy in the event." When Harlowe,[3] in 1948, reviewed 117 papers on tonsillectomy published between 1910 and 1947, he found, as Jones[4] said, "an amazing variety of complications and a shocking number of deaths."

Loeb's[5] investigation of the situation some twenty-five years earlier had even more shocking implications. At that time approximately 5,000 American physicians, one of every 30 then practising, professed to be qualified in otolaryngology. In an endeavor to determine what results were being accomplished in nose and throat surgery, Jones circularized them all and received 717 replies. Four hundred sixty-seven of the physicians who replied stated that they had never had a fatality after a nose or throat operation. The remaining 250 physicians had had 332 fatalities from causes other than anesthesia. One hundred twenty-six, the largest number of deaths after any single operation, followed tonsillectomy, and of the 55 deaths caused by hemorrhage, 43 also followed this operation. How many deaths occurred in the practices of the more than 4,000 physicians who did not reply to Loeb's inquiries is a justified and rather frightening speculation.

INDICATIONS AND CONTRAINDICATIONS

Although our chief purpose in this paper is to discuss the various aspects of post-tonsillectomy hemorrhage, the operation has become too controversial to warrant passing directly to that subject. We shall begin, therefore, with a brief statement of our own indications and contraindications for tonsillectomy.

The wholesale removal of tonsils, which was never a credit to the specialty, has long since ceased. Indications for the operation, however, are still on somewhat uncertain ground because we still are lacking in knowledge as to the true function of both the tonsils and the adenoids. On the other hand, we are certain that

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they serve as a natural defensive lymphatic barrier against invasive infection and that they are essential to the autoimmunization of the young child. Otolaryngologists who believe these things will naturally be very sure of their indications before they advise the removal of such useful structures, and their knowledge will restrain them, as Badger [1] says, from "a multitude of tonsillar sins." In this connection, Dey's [6] study points up a very useful lesson: At the Royal Alexandra Hospital in Sydney, routine removal of the adenoids and tonsils was suspended for eighteen months because of a poliomyelitis epidemic. At the end of this period all 1,415 children on the waiting list were requested to return for examination. When the 681 who responded to the request were re-assessed in the light of their interval histories and symptoms, it was found that 252, well over a third, no longer required the operation. The results of this survey, of course, merely represent a multiplication of experiences we have all had as individuals and they need no elaboration.

In spite of such disconcerting figures, our own feeling is that the present tendency is not to advise tonsillectomy often enough. The surgical indications in this, and in many other, fields have not been altered by the introduction of the antibiotics. These drugs are extremely useful in tiding a patient over an acute attack. They have no permanent effect on intrinsically diseased tonsils and they have no effect at all in some of the circumstances in which removal of the tonsils is justified.

The positive indications for tonsillectomy may be stated as follows:

1. Frequent attacks of tonsillitis with fever and other systemic manifestations. When the tonsils and adenoids have lost their protective properties and have themselves become overwhelmed by infection, they are no longer useful and they are often actually harmful.
2. Recurrent peritonsillar abcesses.
3. Frequent infections of the ear, whether they are suppurative or serous. The present tendency to treat these infections by antibiotics, without puncture of the tympanic membrane and without removal of the tonsils and adenoids when they are identified as the source of the trouble, is one of the chief present-day causes of conductive hearing losses in children.
4. Persistent and recurrent cervical lymphadenopathy, though only after other possible causes have been ruled out.
5. Difficulties in speech, breathing, and swallowing when they are of obstructive origin and are caused by excessive hypertrophy of the tonsils and adenoids. Mere enlargement of the tonsils is not an indication for their removal in the absence of clinical manifestations, especially in young children, in whom they are always disproportionately large.
6. Frequent or continuous head colds.
7. Failure to gain weight and a lack of general well-being. This is a rather frequent indication in children with rheumatic heart disease, whose general health is often greatly improved after the operation.
8. Diphtheria carriers.

There would be no reasonable dispute about the first five of these indications, or about the last. The sixth and seventh may be debatable, and we would resort to the operation on these indications only after careful investigation of all other possible causes. Our experience is that the results are good enough, in enough cases, to warrant tonsillectomy under these circumstances. We do not, however, perform tonsillectomy on prophylactic indications, when there is no disease of the local tissues. Like other otolaryngologists, we have found that the more clearly the symptoms can be referred to the tonsils and adenoids, the better are the end-results. When the operation is performed on indications as vague as those on which operations for so-called chronic appendicitis are often performed, the end-results are likely to be just as poor.

The literature on the possible relation-

ship between tonsillectomy and the development of poliomyelitis, particularly the bulbar and bulbospinal varieties, has always been disturbing and has become massive. There is no particular point to reviewing it here. The possible relationship has been recognized for a quarter of a century and the statistical studies are often contradictory. In our own opinion the discussion has always seemed rather foolish. Tonsillectomy is practically always elective surgery. One would not perform any other elective surgery in the midst of an epidemic of measles or influenza or any other contagious disease, and there seems equally little point to performing, under similar circumstances, an operation which in all but the most exceptional cases can quite well be postponed. The most obvious reason for withholding tonsillectomy in the midst of any sort of epidemic is that one has no way of knowing whether the child was exposed to the prevalent disease before operation or will be exposed to it, in the ordinary course of events, immediately afterward.

A more serious consideration is whether, as several recent reports seem to indicate, the removal of the tonsils at any time in life predisposes to the development of the severer types of poliomyelitis. In Top's [7] study from a Detroit hospital, for instance, tonsillectomized patients, who comprised just over half of the series of 1,947 cases, furnished just over 85 per cent of the cases of bulbar poliomyelitis, more than two-thirds of the spinobulbar cases, and 43 of the 46 deaths in the series. Miller's [8] report on 3,601 cases from Los Angeles County in 1949-1951 suggests that neither recent nor remote tonsillectomy has anything at all to do with the development of poliomyelitis. A separate survey on 675 patients with the disease showed that the incidence of the operation in this group was slightly less than its incidence in the general youth population. We ourselves doubt that remote tonsillectomy has anything more to do with the development of poliomyelitis than remote appendectomy, the next most generally performed operation. We do believe, however, that the possibilities now under study furnish one more reason for being very certain that tonsillectomy is indicated and that the risk which may be inherent in it, immediate or remote, should be weighed against the risk inherent in the retention of the tonsils.

THE RISKS OF ADENOTONSILLECTOMY

According to Clein,[9] who is probably right, tonsillectomy accounts for about a third of all surgery performed in the United States and is performed some two million times each year. According to Boise,[10] who is probably also right, the performance of the operation by untrained physicians accounts for the fact that at least one in every five tonsillectomies and one in every two adenoidectomies are poorly executed. The underlying reason for this state of affairs is the performance of the operation by so many physicians who have had no training at all in otolaryngology. It is generally stated, in fact, that it is more often performed today by physicians who do not specialize in otolaryngology than by specialists in the field.[11] Whether or not that is true, there is no doubt that poor technique accounts for a very large number of the fatalities and complications that follow this operation. There is also no doubt that a major explanation for poor technique is the general custom of considering adenotonsillectomy as minor surgery. It most definitely is not. Quite aside from any other consideration, as McKenzie [12] has well put it, no operation in which the surgeon must work at the very entrance to the whole bronchial tree should be considered in any way minor.

POSTOPERATIVE HEMORRHAGE

As a background to our personal experience with postoperative hemorrhage after tonsillectomy, certain statistical data might be presented (Figure 1):

In 1927 the population of the Baton Rouge area, in which our practice lies, was not quite 40,000. By 1953 it had multiplied 3.75 times and was in excess of 150,000.

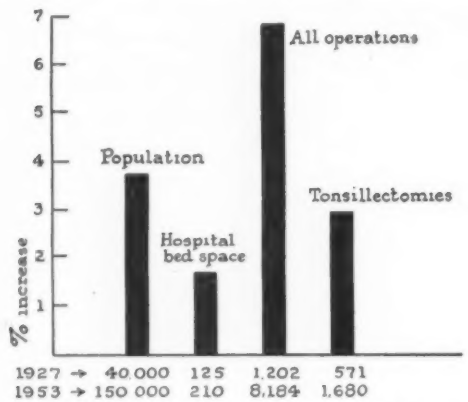

Figure 1. Percentage changes in population of Baton Rouge area, hospital bed space in Our Lady of the Lake Sanitarium, and all operations and all tonsillectomies performed there 1927-1953.

In 1927 the bed capacity of Our Lady of the Lake Sanitarium, where our work is done, was 125, exclusive of bassinets. By 1953, it had been increased 1.68 times and was 210, again exclusive of bassinets.

In 1927, the major and minor operations performed at this hospital numbered 1,202. In 1953, 8,184 operations were performed, more than 6.88 times more.

In 1927, the total number of tonsillectomies, with and without removal of the adenoids, performed at this institution totaled 571, 47.5 per cent of the total number of operations performed (Figure 2). In 1953, the number had risen to 1,680, 2.94 times more, but adenotonsillectomy now constituted only 22.7 per cent of the total number of operations performed.

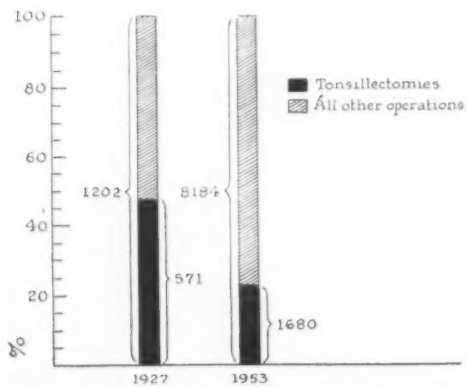

Figure 2. Proportionate changes in all operations and all tonsillectomies performed in Our Lady of the Lake Sanitarium, Baton Rouge area, 1927-1953.

What these figures suggest is that while the prospective candidates for tonsillectomy, as estimated by the regional population and the facilities for its performance, have increased approximately 3½ times and 1⅔ times, respectively, the proportionate use of the operation, as related to the surgery done in the hospital, has decreased by well over half. Obviously, the conclusion is justified that otolaryngologists in the Baton Rouge area are not abusing the operation.

Over the past ten years we have performed, in our private practice, 2,739 tonsillectomies, most of them combined with removal of adenoids. All of them, it is scarcely necessary to emphasize, were performed in the era when some indication existed for the operation other than the fact that the tonsils were still in situ.

The incidence of bleeding after operation, including all bleeding which occurred in the hospital or which occurred outside and was of sufficient degree to make the patients or the parents of the patients inform us of it, was as follows:

82 instances of primary bleeding, in 37 of which packs had been required at operation. This category includes all cases of bleeding which occurred within twenty-four hours of operation.

160 instances of secondary bleeding. These hemorrhages occurred more than twenty-four hours after operation and were distributed as follows:

103 instances of secondary bleeding in 1,679 operations (6.13 per cent) performed before the introduction of penicillin.

57 instances of secondary bleeding in 1,060 operations (5.37 per cent) performed after the introduction of penicillin. The slightly smaller proportion of bleeding in the post-penicillin era is not statistically significant but is interesting in view of the opinion of some observers, which we do not share, that the antibiotics

tend to influence blood coagulation adversely.[13]

Nine of the 160 patients who bled secondarily (5.6 per cent) had also either bled primarily or had required an adenoid pack at operation. Three of these operations had been done in the pre-penicillin era and six afterward, but the difference in incidence, although considerable (2.9 per cent against 10.5 per cent) concerns too small a number of cases to permit any conclusions at all.

PROPHYLACTIC CONSIDERATIONS

Our chief preoperative precaution is a detailed inquiry as to a possible bleeding tendency in the patient. This requires questions about previous injuries, operations, and extractions of teeth. If there have been no such experiences, a further inquiry is made into the family history, not stopping with the parents but getting such information as is possible about other male ancestors.

The hospital runs routine bleeding and coagulation time tests on all candidates for tonsillectomy. We do not regard them as of any special value if they are done independently, though they may be useful, as some observers note, if a medicolegal issue should be raised. If, however, there is a history of any tendency toward bleeding, the patient is studied exhaustively by a complete study (red and white blood cells and differential study), coagulation and bleeding times, platelet count, capillary fragility, clot retraction, prothrombin time, fibrinogen, and plasma clotting time. Sedimentation rates are determined in all cases of current or recent infection.

Adults are given the usual sedation and narcosis before operation. Children under 14 years of age are given no sedation. Respiration in childhood is easily depressed and we see no point to increasing the risk. With a competent anesthetist and the use of modern anesthetic methods there is no difficulty in putting a child to sleep.

All of the operations in this series were done by the dissection and snare technique, with the Davis-Crow type of mouth gag. All of the adenoidectomies were done under direct vision, with the Love retractor, the LaForce adenotome, and Hartman punch forceps.

We have no feeling about operating on young children when it is clearly necessary, though we prefer, unless our hand is forced, to defer surgery until after the second birthday. If it is required by recurrent attacks of tonsillitis or for any other reason, we proceed, with due precautions.

Our policy is always to perform the adenoidectomy first. We regard this sequence as so important that we invariably book the operation, contrary to the usual practice, as adenoidectomy and tonsillectomy. If the child is under 20 months, only adenoidectomy is performed. In children between this age and 30 months, tonsillectomy is proceeded with if the adenoidectomy has given rise to no difficulties and has not been unduly prolonged. Otherwise, the operation is concluded with the removal of the adenoids.

Special attention is always paid to hemostasis, because carelessness in this regard is the most frequent cause of hemorrhage in the immediate postoperative period. We quite agree with Emerson's [14] remark that the techniques of modern surgery have long been neglected by otolaryngologists and we try not to commit that sin of omission. We are always chagrined when primary bleeding occurs from the tonsillar fossa because we regard it as our responsibility.

We try, as far as possible, to employ an atraumatic technique. Carlessness in this regard may mean damage to the wall of a blood vessel, which may rupture in the weakened area when the blood pressure has returned to normal levels. If at the end of the operation there is still oozing from the adenoidal region a postnasal pack is inserted. The tracheobronchial tree is aspirated at the conclusion of the operation whenever it is known or suspected that blood has been aspirated.

After operation the patient is watched carefully until he is fully reacted from

anesthesia, partly to see that a satisfactory airway is maintained and partly to detect possible bleeding. A young child is never left alone at any time. All patients are observed regularly while they are in the hospital, and one or the other of us always inspects them at night rounds, six or eight hours after surgery.

When the patient leaves the hospital, usually twenty-four hours after operation, he is provided with written instructions. The period of bed rest is determined by the necessities of the individual case. Bathroom privileges are usually permitted. Instructions are given as to the use of mouth washes, laxatives and other matters, including diet. Because we have no fear that the taking of food will injure the throat, we recommend prompt resumption of the usual diet. Tomatoes, tomato juice and highly seasoned foods are prohibited, but only because they will burn the throat, and the patient, especially if he is a small child, will hesitate to take more food. The taking of solid food keeps the throat and regional muscles supple, while the mere act of swallowing keeps the pharynx clean. Liquids and soft foods do not have this effect.

Sulfathiazole gum is chewed for thirty minutes every four hours during the day. If the throat is painful, the patient may chew aspergum, which contains 3.5 gr. of aspirin per piece, or may take aspirin, preferably before meals.

ACTIVE THERAPY

Primary bleeding after tonsillectomy, if it is of any consequence, requires prompt action. The patient is at once taken back to the operating room and the bleeding point is sought for, the precise procedure depending upon the special case. If the bleeding is from the tonsillar fossa, ligation or suture is employed. If it is from the nasopharynx, a pack is employed. We prefer not to use general anesthesia, because we believe that it adds to the hazards of the hemorrhage. A dose of sodium luminal is usually all that is required. In two instances in this series, however, anesthesia was employed, on special indications; one of the patients was a very large man and the other a very large child and in both exposure of the bleeding point was impossible otherwise.

Secondary bleeding is treated routinely by the intramuscular injection of double-strength U.S.P. posterior pituitary extract. Adults receive a total dosage of 15 minims, given in 5-minim doses at intervals of fifteen minutes. Children under 6 years of age receive a total dosage of 12 minims, also given fractionally at fifteen minute intervals. When we first began to use this method we employed ring forceps to remove any clot which might be present. This has been found to be an unnecessary manipulation, since the clot is promptly squeezed off as the constrictor action of the drug begins to take effect.

This method has now been employed in 160 cases of secondary post-tonsillectomy bleeding. Fourteen patients continued to bleed after the injection and had to be treated by pack, suture or ligation. In the other 146 cases bleeding ceased promptly and permanently after a single injection of pituitrin.

COMMENT

The use of pituitrin in post-tonsillectomy bleeding was first reported by one of us (J. W. McL.) in 1944,[15] and again in 1948.[16] At neither time was it known that this method had previously been suggested for tonsillar and nasal hemorrhage by Salinger,[17] in 1918. In all of Salinger's 100 cases, however, the injection was given prophylactically. It was repeated in a few of the 13 cases in which postoperative bleeding occurred. We have never employed pituitrin prophylactically and are, in fact, opposed to routine medication for hemostasis, which should be achieved directly at operation, with hemostat, tie, suture or pack as indicated.

The rationale of this method is the established constrictor effect of double-strength posterior pituitary solution on the arterioles and capillaries.[15] The drug is also known to decrease the flow of blood to the coronary arteries, and for this reason, it must never be used in patients

with cardiac disease. We have observed this precaution faithfully, and the only side effect we have noted is occasional abdominal pain, which disappears when the bowels have moved, as they do at once.

This is a simple, extremely effective method. As a precaution, we re-hospitalize all bleeding patients before the injection is given, but a stay of only a few hours is required. One of the advantages of the method is that its simplicity does not add to the panic which patients, and especially the parents of young children, so often feel in the presence of bleeding. The promptness with which the hemorrhage is controlled has the same effect.

Jones,[4] in a comprehensive review of the literature in 1953, discussed the various causes which had been advanced for secondary bleeding after hemorrhoidectomy, including climatic factors, the administration of various vitamins with and without acetylsalicylic acid, and the use of chemotherapeutic and antibiotic agents. There is no doubt that one cause of the secondary hemorrhage which sometimes occurs about a week after operation may be the separation of the membrane, which is cast off, as a slough, from the tonsillar fossa. Otherwise, with the exception of infection, none of the other possible causes of hemorrhage seem very convincing.

When Neivert,[18] in 1945, published his studies on prothrombin time after tonsillectomy, which seemed to implicate acetylsalicylic acid as a cause of postoperative bleeding, we began a similar study in our own practice. In 25 consecutive cases, in all of which either aspirin or aspergum had been used, the prothrombin time was not below 80 per cent of normal in any instance, and in most cases it was between 90 and 100 per cent of normal. The tests were concluded at this point, partly because of the uniformly negative results but chiefly because of the current shortages of laboratory personnel immediately after the war. It is true that the salicylates lower the prothrombin time of the blood, but our own experience does not indicate that the use of aspirin in the quantities taken after tonsillectomy is ever likely to have this effect.

Our own feeling is that the majority of cases of post-tonsillectomy bleeding are the result of infection. We, therefore, postpone operation if there is a history of a recent infection, sore throat or cold, and we never operate if there is any temperature elevation at all. We study with particular care all patients with a history of unexplained, low-grade temperature elevation over a long period of time, as well as patients with leg, joint, and bone pains or with any other evidence of systemic infection. Patients who have had an acute infection within a month of operation always receive the same careful scrutiny.

All these patients with recent infections are studied by the sedimentation rate, which is done by the Wintrobe method, and we prefer not to operate unless the value is between 16 and 20 mm. per hour, though we are influenced by the trend of the rate as well as by the actual values if serial tests are necessary. In 38 of the 45 most recent instances of bleeding the sedimentation rates at operation were within this range or lower. In the other seven the values were from 22 to 27 mm. per hour in six cases and 35 mm. per hour in the seventh. The figures are too small to warrant conclusions, but we obviously failed to abide by our own rule in these seven cases and the infection which the elevated values indicated perhaps explained what happened.

SUMMARY

Tonsillectomy is now usually performed on restricted, rational indications. It remains to be proved whether the operation influences the development of poliomyelitis, either immediately or remotely, but it is the part of wisdom to refrain from elective surgery during any kind of epidemic.

The performance of the operation by untrained physicians and the tendency to regard it as minor surgery, which it is not, explain most of the deaths, complications and poor results.

Hemorrhage is the most frequent of these complications. It occurred primarily 82 times and secondarily 160 times in 2,739 tonsillectomies performed in private practice over a ten year period. Prophylactic measures are discussed and a simple method of controlling secondary hemorrhage, by the intramuscular injection of double-strength U.S.P. posterior pituitary extract, is presented.

It is believed that except for technical errors infection is the most reasonable explanation of all forms of post-tonsillectomy bleeding. It is doubtful that aspirin, in the quantities ordinarily used after operation, plays any role at all.

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UROLOGICAL PROBLEMS IN CHILDREN *

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Unfortunately a large percentage of the urological problems of children start off with mild or no symptoms. Their underlying cause is frequently congenital. They occur in a young age group who are somewhat insensitive to pain and unable to make the discomfort known, and the diagnosis is often made only after irreparable damage has been done. Pyuria, hematuria, or severe pain are usually late symptoms in these little patients.

Campbell, in a large series of autopsies, found that a combination of obstruction (urinary stasis) and infection constitutes over 90 per cent of the major urologic problems in infants and children. The majority of the obstructions are congenital. Since the urinary secretion begins about the fifth month, advance hydronephrosis, even with complete parenchymal destruction, may occur in the newborn. Hydronephrosis in varying degree occurred in approximately 1 in 20 cases in 15,919 autopsies. Anomalies found in the autopsies: renal hypoplasia 1:513, unilateral renal agenesis 1:610, fused supernumerary kidney 1:4000, congenital solitary renal cysts 1:1591, congenital polycystic disease 1:227, fetal lobulations which usually disappear at the age of 4 or 5 years persisted throughout life in 5 per cent, fusion of kidney usually horseshoe type 1:400, sigmoid or L-shaped kidney 1:4000, congenital ectopic kidney 1:800.

Regardless of the patient's size or age, cystoscopy with x-rays, if needed, should be performed. Ten years ago many good pediatricians maintained and most conscientious urologists admitted that the trauma of instrumentation with spread of

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infection obviated the diagnostic gains of thorough urologic studies in the positive handling of urinary problems of infancy and childhood, but the advent of antibiotic and chemotherapeutic antiseptics and the availability of improved small urological instruments leaves no curtailment in securing adequate information except ignorance of the physician or incompetence of the urologist.

Campbell has listed these indications for cystoscopy: (1) pyuria (a) acute persistent, (b) chronic; (2) disturbances of urination, enuresis, dysuria and urgency; (3) hematuria—except acute nephritis; (4) abnormal pain; (5) abnormal tumor; (6) anomaly of external genitalia (upper tract anomalies occur in one third); (7) urogenital injury; (8) hypertension; (9) renal insufficiency; (10) retarded growth; (11) spinal cord injury and disease; (12) therapy, that is, renal drainage, dilatation of ureter for stricture or to encourage the passage of a stone. In all cases in which excretory urographic study is not clearly defined cystoscopy, of course, is indicated.

Contraindications to cystoscopy are: (1) Acute urinary infection except acute, persistent pyuria; (2) marked debility, emaciation (rarely); (3) acute nonurologic illness (with rare exception); (4) ignorance or incompetence on the part of the operator (Keys). *Tender age is no contraindication to cystocopy.*

CASE REPORTS

I wish to present a few cases selected to show the importance of adequate early urologic study.

Case No. 1. M. J. P., white female, thirteen months of age, gave a history of the diapers becoming moist very quickly after changing since birth. The parents stated she had "kidney trouble" in the form of recurrent fever, pyuria, and irritability for past nine months. Examination revealed a well developed and nourished, white female not appearing acutely ill. Blood picture was normal except for a slight elevation of the white count. Urinalysis (cath.) revealed 1 to 4 pus cells H.P.F. and a few *B. coli.* Cystoscopy with x-rays under general anesthesia disclosed a hydronephrotic, infected, upper pole of the left kidney with ectopic orifice in the vagina. Under general anesthesia left hemine-phrectomy and ureterectomy were performed. The microscopic diagnosis was hydronephrosis with diffuse, chronic pyelonephritis and hypertrophy and dilatation of the ureter. Convalescence was uneventful. Repeated urinalyses have been negative.

Case No. 2. S. L. R., white female, fourteen months of age, had a persistent pyuria in spite of penicillin, terramycin, sulfa, etc. with recurrent fever, frequency, and dysuria for past two months. Examination revealed a well developed and fairly well nourished, white female not appearing acutely ill. Tests and x-rays were normal except for a slight elevation of the white counts, many pus cells (50 to 100 H.P.F.) and *B. coli* in the urine. Cystoscopy with differential renal function test and x-rays under general anesthesia showed a right hydroureter and hydronephrosis (infected). A right nephrouretectomy (with double ureters down to the ureterovesical juncture) was performed. The pathological report: "Microdilatation with thinning and fibrosis of the ureters with an active chronic granulomatous ureteritis and pyelitis. Severe hydronephrosis with renal parenchymal scarring". Convalescence was uneventful. Repeated urinalyses have been negative. The patient has a normal appearance.

Case No. 3. R. R., colored female, eight months of age, had a mass in the upper left quadrant that the mother noticed two weeks before admission to the hospital. Examination revealed a well developed and nourished colored female not appearing acutely ill. Urinalysis, blood picture, blood chemistry, and x-rays were normal except for the kidney x-rays. Cystoscopy with x-rays under general anesthesia revealed a normal left kidney, but the right pyelogram showed a deformity consistent with a tumor. Right nephrectomy under general anesthesia was performed. The tumor weighed 310 grams. Microscopic report showed it to be a Wilms tumor. The convalescence was very satisfactory. Postoperative irradiation was given. The patient is doing well six months after operation.

Case No. 4. J. B., white male, ten years of age, experienced increasing difficulty in voiding. He required a longer time than the other children and the stream lacked force. Recently he did not take as much interest in his surroundings, especially sports. The examination revealed a well developed and nourished white male not appearing acutely ill. There was a mass in the suprapubic region that persisted after voiding. A residual urine of two quarts was present. Blood chemistry showed N.P.N. 45 and creatinine 1.6, R.B.C. 4,125,000. A cystogram revealed a very large bladder with reflux up both ureters which were markedly dilated as were the pelves and calices. Cystoscopy revealed a congenital valve in the posterior urethra. Suprapubic cystostomy with removal of the valve was performed. After

prolonged suprapubic drainage, the right kidney function improved with diminution in size of the ureter, pelvis and calices; however, it was necessary to remove the left kidney. The patient's renal function remains impaired with slight elevation of the blood N.P.N. after five years. He has regained his interest in sports and maintains marked good grades in school.

Case No. 5. F. M. D., colored female had bilateral palpable masses in the kidney regions at birth. X-ray (K.U.B.) confirmed the suspicion. Blood picture and chemistry were normal. Intravenous pyelogram showed no excretion of medium. It was impossible to get retrograde pyelograms due to a congenital deformity of the bladder. A left nephrectomy was performed on the eighth day after birth for what was thought to be sarcoma of the kidney (wt. 280 grams). The convalescence was quite satisfactory. Microscopic diagnosis was polycystic kidney. Although to-date the patient appears normal clinically without any apparent increase in size of the right kidney, the prognosis is very poor.

Case No. 6. W. B., Jr., colored male, two years of age, was admitted to the hospital on account of fever, pain in the left side, and frequency of urination of two days' duration. He had the first attack of pyelonephritis at ten or eleven months of age. Since that time he had had intermittent attacks of fever and pyuria. Examination revealed a well developed and nourished colored male not appearing acutely ill. R.B.C. 3,800,000, Hematocrit 38, W.B.C. 15,300; polymorphonuclears 58; lymphocytes 42, Hb. 12. The urine was loaded with W.B.C.; occasional R.B.C.; and occasional gram positive coccus. After antibiotic treatment the urine cultures were consistently negative. K.U.B. and intravenous pyelogram revealed good function bilaterally with possible early dilatation. The renal outlines were not definite. Calculi were noted, but their relationship to the genito-urinary tract was not established. The cystogram was within normal limits. The calculus showed in the lower pelvis and not in the bladder. Cystoscopy revealed calculi in the left kidney, the lower pole of which approached the midline. The calculus in the lower tract was definitely in the ureter. The right side was within the normal limits. Impression given was a horseshoe kidney with calculus disease. Six days after admission to the hospital a calculus was passed. Five calculi were removed by operation (four from the kidney and one in the ureter). The convalescence has been uneventful.

To avoid prolongation of this discussion, case histories of congenital stricture of the ureter or urethra have been omitted. Inasmuch as these conditions constitute the most common cause of hydronephrosis and recurrent urinary tract infection their importance should be emphasized. If the obstruction is marked and dilatation has occurred, intravenous pyelo-uretero-cystogram sometimes will disclose their presence, but in doubtful cases cystoscopy with passage of ureteral catheters and x-rays is mandatory because only in this way can we prevent irreparable urinary tract damage in later life.

CONCLUSION

1. Major urological problems in children are much more frequent than one would suspect.
2. Early diagnosis and treatment are necessary to prevent irreparable damage.
3. Cystoscopy with x-rays is indicated, regardless of the age, when diagnosis is in doubt.
4. Pyuria, hematuria, or pain usually occur late in the disease.

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CLINICAL SUMMARY OF SALT AND WATER METABOLISM *

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Salt and water metabolism presents to the clinician a new type of problem in that the information gained at the bedside is often too inaccurate to use or even misleading. We are well aware that thirst need not represent a need for water and that the salt depleted human, unlike the rat, does not crave salt.

Most of our information has come from the laboratory. Initial information was based on the chloride and bicarbonate ions because of the simplicity of the determinations. It became apparent, though, that the cations, sodium and potassium, were of more primary importance. With the coming of the internal standard flame photometer, in 1946, accurate sodium and potassium determinations have become quick and simple enough to be used in the

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routine clinical laboratory.

The literature on the subject is already voluminous and often conflicting. In summarizing, I shall draw freely from the literature, and for the sake of continuity I shall take the liberty of filling in the gaps with my own experience. In this way I hope to integrate information cross-filing many diseases.

First, a brief introduction to the water in the body. (Figure 1) About 60 per

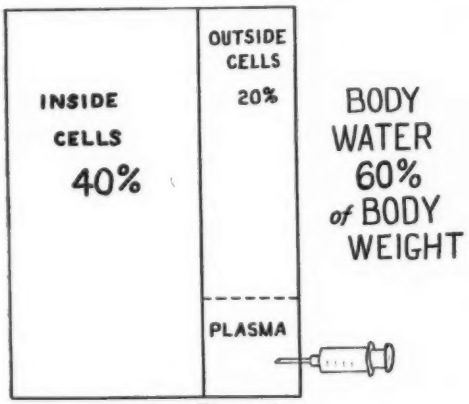


Figure 1

cent by weight of the adult human is water. About 40 per cent is inside cells and the other 20 per cent is outside cells. One fourth of the latter is plasma which serves to stir the extracellular fluid. It is readily available for analysis and has essentially the same composition as the rest of the extracellular fluid. All of this water contains salts in simple solution. That within cells is rich in potassium and that outside cells is rich in sodium.

To compare quantities of potassium and sodium it is necessary to introduce a unique unit, the milliequivalent (Figure 2). Since potassium is a larger and heavier atom than sodium, 10 milligrams of potassium does not represent the same number of atoms as 10 milligrams of sodium. A milliequivalent of potassium is 39.1 mg. and contains the same number of atoms as a milliequivalent of sodium which weighs 23 mg. The relative weights of these atoms are 39.1 and 23. Similarly, a milliequivalent of chloride is 35.5 mg.

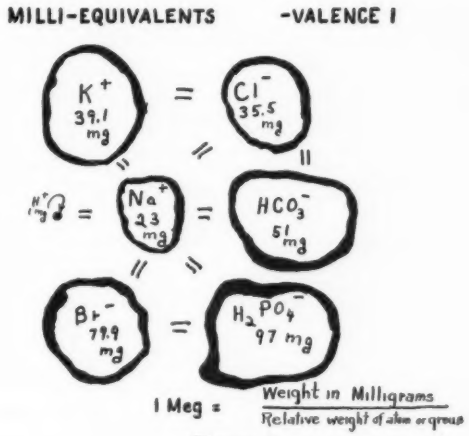

MILLI-EQUIVALENTS -VALENCE 1
K+ 39.1 mg
Cl- 35.5 mg
Na+ 23 mg
HCO3- 61 mg
Br- 79.9 mg
H2PO4- 97 mg
1 Meq = Weight in Milligrams / Relative weight of atom or group

Figure 2

and of bicarbonate 61 mg. To get milliequivalents one need only divide the milligrams by the relative weight of the atom or group of atoms. This unit streamlines our bookkeeping. We can now say 1 milliequivalent of sodium combines with 1 milliequivalent of chloride or 1 of bicarbonate or replaces 1 of potassium or hydrogen.

Returning to the body water (Figure 3) we can now easily express the normal compositions of the cellular and extra-

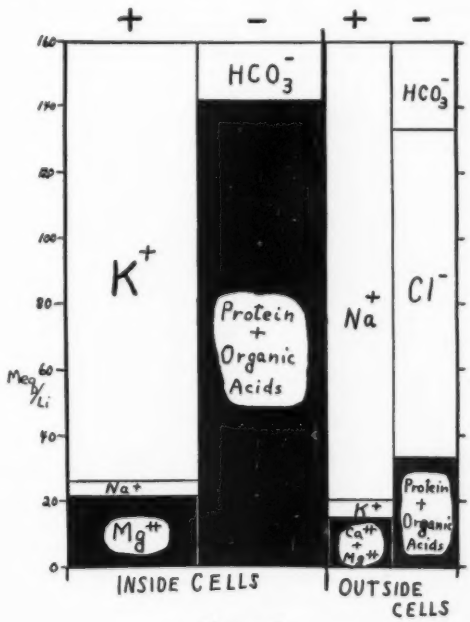


Figure 3

cellular fluids in simplified form. Note that potassium is about 30 times as concentrated inside cells as outside and the reverse is true for sodium. Note that chloride is almost all extracellular. Note that the total of positive ions must equal the negative ions. The total of the ions inside cells must equal the total of the ions outside cells because of osmotic forces. Hence, a low extracellular sodium level reflects a low intracellular potassium level. As represented, sodium is in solution as a free ion and not as sodium chloride. The sodium matching chloride is in a common pool with that matching bicarbonate. Clinically, today, we are chiefly concerned with sodium, water, and potassium.

In health the levels of salts and water are maintained largely by the kidney. The kidney has the remarkable ability to regulate its excretion to match the body intake. Salt and water enter the extracellular fluid and leave via the kidney as represented in Figure 4. The cell is bathed by the extracellular fluid and is limited to an exchange of salt and water with the extracellular fluid.

So long as the intake minus any extraneous losses remains within the kidney's ability to regulate, a normal level will exist in the extracellular fluid. When this quantity exceeds the kidney's ability to secrete, that substance accumulates in the extracellular fluid and the normal range is exceeded. Conversely, when the intake minus the extraneous losses in sweat, vomiting, diarrhea, intestinal intubation and paracenteses is below the kidney's minimum secretion, the extracellular space is depleted. With this concept therapy becomes merely adding or subtracting a salt or water to fit within the renal regulation.

We shall follow this general plan. The variables are intake, extraneous losses, and renal regulation, any of which can cause trouble. We shall deal with sodium, water, and potassium separately and express the clinical essentials of their interrelation.

Figure 5 is the general plan for sodium. The variation of the diet between the Chinese and the Eskimo readily suggests

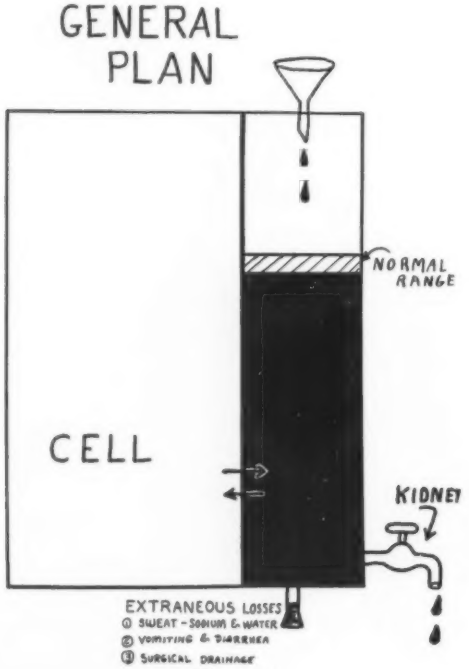


Figure 4

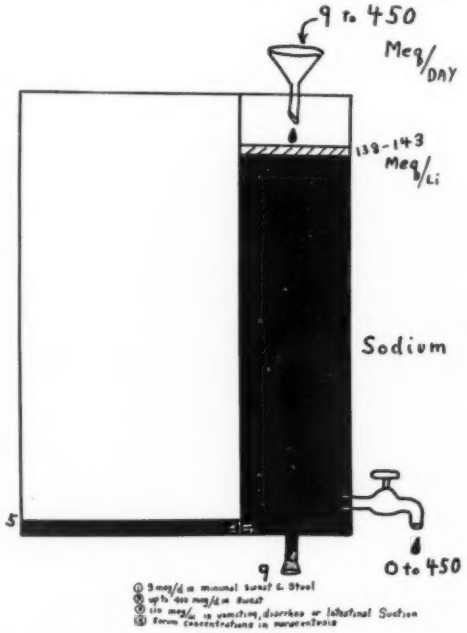


Figure 5

the wide range of renal sodium excretion. The kidney can excrete as much as 450 meq. of sodium (25 gm. of NaCl or 40 gm. of $NaHCO_3$) daily and when necessary can virtually secrete a sodium free urine. Since about 9 meq. (500 mg. NaCl) are lost in stool and minimal sweat, this becomes the lower limit of intake. (This is the 200 mg. sodium diet). Up to about 200 meq./day may be lost in severe sweating and average intestinal juices contain somewhere in the neighborhood of 100 meq./Li., whether it presents as vomiting, diarrhea, or via a Miller-Abott tube. A notable exception is the vomiting with a peptic ulcer in which hydrogen replaces sodium. Lastly, paracenteses are essentially at serum concentrations.

Should 450 meq. be exceeded, the body retains sodium. Normally, this does not happen but the experiment has been done many times. Retention usually occurs as a result of impaired renal excretion. Figure 6 is a comparison between the renal

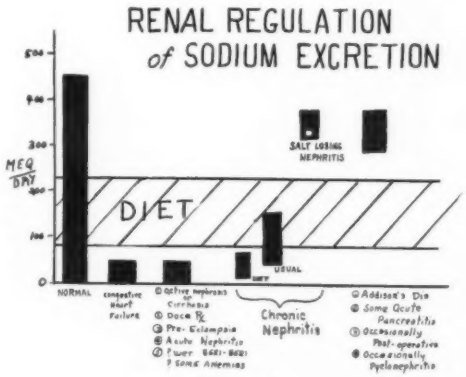


Figure 6

regulation in a hypothetical case of various diseases and a normal diet range. Note that the normal has much leeway. Note also that heart failure, pre-eclampsia, active nephrosis, acute nephritis, etc., are characterized by an impaired excretion, and that Addison's disease, some cases of acute pancreatitis, etc., by impaired conservation. A chronic nephritic may telescope his range to any level.

The excess sodium retained rarely presents as a high serum level, though this is occasionally seen in renal failure and is often referred to as "Luetscher's syndrome." Instead, as shown in Figure 7,

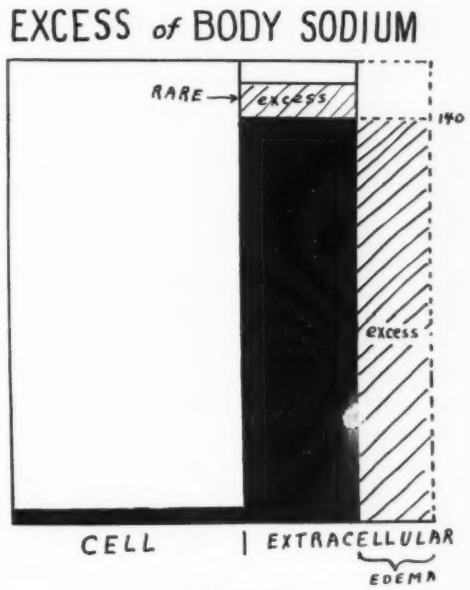


Figure 7

it usually presents as an associated excess of water or edema with no change in concentration. This is again represented in Figure 8 which is a hypothetical plot of

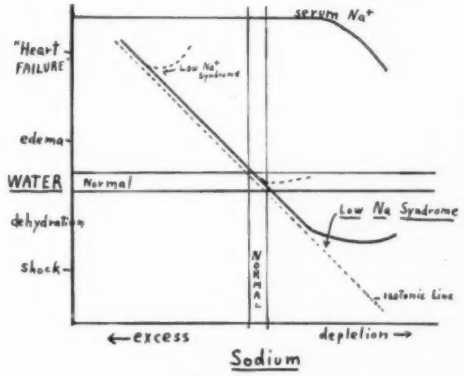


Figure 8

extracellular water against extracellular sodium. This is distinctly a renal adjustment. The "isotonic line" represents equivalent change of sodium and water giving no change in concentration. The joint rise to the left along the isotonic

line appears as edema at 2 to 3 liters and at 8 to 12 liters produces the clinical picture of "congestive heart failure" in most every detail, including venous distention, cardiac enlargement, and even a gallop rhythm. With this concept it is hard to define "congestive heart failure" as anything but this renal retention of salt and water as a result of heart disease. You will remember in Figure 6 the impairment of salt excretion in "congestive heart failure" as demonstrated by Schroeder, Futcher, and others. The clinical syndrome in retention in nephrosis and cirrhosis is different perhaps because of the lack of albumin. This would cause the plasma to be less than one-fourth of the extracellular fluid.

Sodium depletion is difficult to produce without either an extraneous loss as mentioned above or a renal failure to conserve as shown in Figure 6. Small depletions, such as occur in a rice diet for hypertension, are associated with extracellular water loss (Figure 8). But further depletion, such as in Addison's disease, heat exhaustion, or an occasional patient on a low sodium diet, is associated with a break in the renal regulation, perhaps as a result of the already lowered plasma volume. Water is no longer lost and the sodium concentration falls. The low sodium syndrome produced is characterized by weakness, thirst, lethargy, sweating, tachycardia, and often a drop in blood pressure. Renal impairment is evidenced by azotemia, hyperkalemia, further water retention, and in experimental studies, impaired renal clearances. All is quickly reversed by giving 300 to 600 meq. of sodium (2 to 4 liters of saline). This is the only instance of a low sodium syndrome that can be properly treated by isotonic saline. The kidney will retain enough sodium without water to reverse the lesion.

This same break or low sodium syndrome can occur anywhere on the curve of renal adjustment of water to salt. Perhaps this again represents a renal impairment of water excretion. A classic example is the patient in heart failure from heart disease who is treated by sodium depletion tactics. Usually this has been going on for some time and he is particularly vulnerable if he is getting mercurials, which directly impair the kidney with respect to sodium and water. The break occurs high on the curve (Fig. 8) and his weight or water actually rises. The same clinical picture appears except this patient is edematous and he may have paralytic ileus. Here giving 300 to 600 meq. of sodium in the least quantity of water (300 to 600 cc, of 5 per cent NaCl) restores the previous state. It is extremely important to restrict water lest his intake be hypotonic saline which will harm him. One must deny this thirsty patient his drinking water. The hypertonic saline should be given slowly for fear of aggravating his congestion and may be given stepwise.

A related situation may obtain nearer the normal volume in such situations as acute pancreatitis where large quantities of sodium may be lost in the urine. Similarly, and not infrequently, an identical situation occurs immediately postoperative for some unknown cause. All patients do not retain sodium postoperatively. In these two situations the patient merely becomes drowsy and listless in two to three days. His blood pressure may be low. The large sodium loss has not been announced by a loss of large volumes of water, and usually goes unnoticed. But the serum sodium is low and large quantities are present in the urine. The urine sodium concentration may even be higher than that in the serum. Indeed this must be considered a selective renal failure as azotemia is usually not present. The sodium should be replaced because the deficit causes further damage. Frequently, there is a striking clinical response, but often it is slow. Perhaps this is due to damage to other systems by whatever damaged the kidney. Daily serum and urine sodium determinations should be done. A first approximation of 300 to 500 meq. should be given and water restricted. A second

approximation may be based on the next day's serum sodium, adding in the twenty-four hour urine sodium loss. When the serum sodium reaches 135 meq./Li. one may simply replace the sodium loss as measured in the previous twenty-four hour urine. The serum potassium should also be followed. Should the serum bicarbonate fall, either sodium bicarbonate or lactate should be substituted for the chloride. Both come in ampoules containing about 45 meq. of sodium in hypertonic solution.

In cirrhosis the renal handling of salt and water is often impaired. A low serum sodium in cirrhosis probably should only be raised if it is symptomatic or if there is a serious hyperkalemia. Often following a large paracentesis on a low salt diet serious hyponatremia appears. If 10 liters is removed then 140 meq./Li. times 10 liters or 1400 meq. of sodium (80 gms. of salt) is removed. Should the water reaccumulate without sodium available in the diet, it would take the same 80 gms. of NaCl to restore his sodium concentration. It seems that the cirrhotic has an independent water retaining tendency.

Lastly, in some chronic diseases, for example, old cardiovascular accidents, the serum sodium regulates low, and in certain brain lesions, notably thalamic, it may regulate at 170 meq./Li. Each is without renal impairment.

Water has been discussed in relation to sodium but also deserves separate attention. The normal kidney can excrete over 20 liters a day such as in neurotic polydypsia or diabetes insipidus. There may be little or no sodium loss should the kidney need to conserve it. In this connection the short lived attempt to flush sodium from patients in heart failure with a large water intake yielded no increase in sodium excretion. On the other hand, the kidney requires about 600 cc. a day to excrete its solutes.

The body loses a liter a day by evaporation without noticeable sweat and makes about 300 cc. a day in burning foodstuffs —a net loss of 700 cc. This makes 700 plus 600 or 1300 cc. the minimum water requirement.

Maintenance can be had even in renal disease by giving a quantity of water equal to the previous twenty-four hour urine volume plus 700 cc. An additional increment is needed for visible sweat and any other extraneous loss should be matched. This allows 700 cc. a day for an anuric patient which is a little high.

Overhydration has been discussed with sodium retention. It occurs without further sodium retention in cirrhosis, nephrosis, the low sodium syndrome, and with pituitrin intoxication. According to present beliefs water should be restricted only in the low sodium syndrome. Nephrotics may be made sicker by water restriction.

Depletion of water without sodium occurs in thirsting and in diabetes insipidus. The treatment is obvious.

The signs of dehydration are not too accurate in the adult. Loss of skin turgor —the ability of the pinched skin to resume its shape—is not too distinct. Softening of the eyeballs may be noted. The eyes may be sunken. Weight loss is accurate but difficult to follow in a sick patient, though this can be done with a stretcher that will balance on a scale. With good kidneys the specific gravity of the urine is a good index of mild dehydration. In acute dehydration the hematocrit rises noticeably. A deficit of about 4 or more liters may produce shock. If treated quickly with saline the return of urine flow is prompt and the quantity and specific gravity of the urine may be used as an index of the state of hydration, barring previous renal disease. If the initial specific gravity is about 1.012, then there is either old or new renal damage.

Potassium, clinically, presents a different situation because it is about 90 per cent intracellular and because the kidney handles it differently (Figure 9). First, the kidney is unable to conserve potassium as well as sodium. Even in hypokalemia normal kidneys continue to excrete 8 meq./Li. in the urine. Also the maximum is not like that for sodium. With an in-

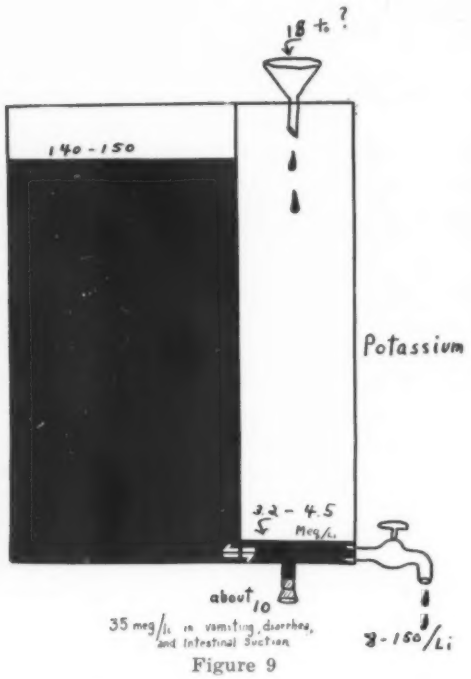


Figure 9

creasing load the urine potassium rises to about 150 meq./Li. and a diuresis occurs, allowing for the excretion of more.

A simple excess of potassium is associated with hyperkalemia, e.g., upon ingesting a large dose of potassium chloride. A simple depletion is associated with hypokalemia. This may occur in a person maintained on large quantities of intravenous glucose and saline over prolonged periods. Otherwise, there is little correlation between body potassium and serum level. Clinically, the serum level is the important consideration. The normal serum level is about 3.2 to 4.5 meq./Li., but symptoms rarely occur between 3.0 and 7.5. Clinically, hyperkalemia and hypokalemia are similar, both giving paralysis, the former muscular and the latter neuromuscular and not paralyzing the heart. The electrocardiogram in hyperkalemia generally shows high T waves and in hypokalemia low T waves. With severe hyperkalemia the QRS widens and with hypokalemia the heart becomes irritable.

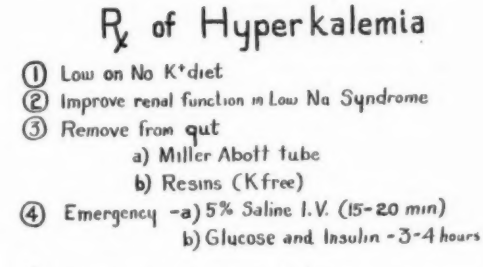
Hypokalemia is body potassium depletion with one exception—a rare disease called periodic familial paralysis in which there is periodic hypokalemic paralysis from a shift of the potassium into the cells. In all instances significant hypokalemia should be treated by potassium replacement. The deficit is usually about 200 meq. It is given in solutions containing about 35 meq./Li. This must be given slowly, lest a transient hyperkalemia cause heart standstill. Also, it is wise to replace it stepwise while following the serum levels.

Hyperkalemia is essentially a renal failure though it does not occur in all cases of renal failure. With normal kidneys it occurs only when a large potassium load is placed on the kidney. A release from cells may do this. In renal failure it occurs with normal or small potassium loads. A person with chronic uremia who is reasonably comfortable may collapse from hyperkalemia after eating four oranges. It is often seen in the impaired renal function associated with a low serum sodium or dehydration or shock, even though the body may be potassium depleted too. This is often observed in the combined sodium, potassium, and water depletion of diabetic coma or severe diarrhea. Upon replacing sodium and water the serum potassium falls and may become critically low. The potassium loss should be replaced only when it becomes normal or low in the serum.

A similar picture occurs in cirrhosis with hyponatremia but it is less amenable to treatment. It occurs in critical states such as severe infections.

This renal impairment in potassium excretion may be seen in nephrosis in the absence of azotemia.

Hyperkalemia in the chronic nephritic or in the nephrotic may be treated simply by a low potassium diet analogous to the low sodium diet (Figure 10). Similarly ion exchange resins may be used. Hyperkalemia in acute renal failure is treated by a potassium free diet. In the low sodium syndrome it is treated by improving renal function with salt. Large quantities of potassium can be removed via a


℞ of Hyperkalemia
① Low on No K⁺ diet
② Improve renal function in Low Na Syndrome
③ Remove from gut
a) Miller Abott tube
b) Resins (K free)
④ Emergency -a) 5% Saline I.V. (15-20 min)
b) Glucose and Insulin - 3-4 hours
④ Radical - Artificial Kidney
Figure 10

Miller-Abott tube if inserted while peristalsis is still present. In an emergency hypertonic saline will afford fifteen minutes grace and glucose and insulin will give a few hours.

Lastly, the artificial kidney is very effective in removing large quantities of potassium rapidly.

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MANAGEMENT OF THE DEAFENED PATIENT;

WITH SPECIAL REFERENCE TO THE ROLE OF THE GENERAL PRACTITIONER *

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At the present time deafness is solely an otologic problem. Most deafened patients who seek treatment—as a great many of them do not—go directly to the otologist. This is not a satisfactory situation. Ideally, the otologist should be a consultant and a therapist. Ideally, most deafened patients should be referred to him, for confirmation of the diagnosis and for treatment. If once that ideal could be accomplished, an enormous advance would have been made in the management of deafness.

The problem of deafness, in fact, will never be managed as it should be from the standpoint of case-finding and treatment, let alone prophylaxis, until the general practitioner assumes his full responsibility for it. With very little effort on his part he could be the richest source of case-finding which exists in any field of medicine. He could readily identify deafened patients who do not mention their own hearing loss, or who are unaware of it, by clinical observation plus a simple question in the routine of history-taking. To them and to those who call attention to their own condition he could point out the possibilities of cure in the occasional case, of improvement in many cases, and of aural rehabilitation in all cases. In the past the deafened person has been largely left to his own devices. There is no justification for that state of affairs. There is much to be done for him, and the general practitioner is the physician who can best bring that realization to him.

How many deafened and hard-of-hearing persons there are in the United States today no one really knows. Such surveys as have been made, and such statistics as are available, suggest that the number is between seven and a half and nine and a half million, and that at least one and one half million of these are children. General practitioners, because of the nature of their practice, see more patients than any other group of physicians. By the law of averages they must see many of these deafened millions, but for the most part they have not, in the past, seized the opportunities for diagnosis and guidance which their field of practice presents. This is not strange. No blame can be attached to them for their failure. There are two reasons for it. The first is that the average medical student receives almost no instruction in the recognition and management of deafness. The second is that otologists have been slow to point out to their confrères, and particularly to general practitioners, how much has been achieved recently in the alleviation of this handicap.

The purpose of this paper is to present the general facts of the present situation and to emphasize, particularly, certain extremely important facts upon which very little emphasis is usually laid.

DEFINITION AND CLASSIFICATION

For the purposes of this discussion deafness may be described as hearing which is nonfunctional for the ordinary activities of

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life. It falls into three categories, conductive deafness, nerve (sensory) deafness, and central deafness. This classification is more than academic. Each variety of deafness develops upon a different etiologic background, each requires a different therapeutic regimen, and the prognosis is different in each type.

Conductive Deafness.—In the conductive type of deafness the sensory (nerve) system of the inner ear is intact but sounds do not reach it because their passage to it is obstructed. For all practical purposes conductive deafness arises on a mechanical basis, which may take three forms:

1. The external auditory canal is plugged, often as the result of infection, and even more often by wax which is allowed to remain in place for long periods of time.
2. Movement of the eardrum is impaired.
3. Movement of the ossicles is impaired.

These three causes can be traced, in turn, to three other causes:

1. Infections of the middle ear are inadequately treated.
2. The otologist who treats pathologic processes in the eustachian tubes does not always remember that their function is to aerate the middle ear and that this function must be re-established after an illness if hearing is to be maintained.
3. Otosclerosis develops.

There is nothing to be done to prevent the third of these causes. The first and second can be prevented by a commonsense precaution, namely, a check of the auditory function after recovery from acute infections of the middle ear and acute systemic infectious diseases.

Loss of hearing is never immediately total in the conductive variety of deafness. Sounds of very high intensity cause vibrations in the skull and these vibrations continue to be transmitted to the sensory organ of the inner ear. If, however, conductive deafness continues unchecked, loss of hearing eventually becomes complete. Secondary nerve degeneration is then almost inevitable, just as muscular atrophy is inevitable if an arm or a leg is kept in a cast for an indefinite period.

The clinical manifestations of conductive deafness are characteristic. The patient, as a rule, speaks in a low voice because he hears himself by means of bone conduction and does not realize that his voice is too low for others to hear him. He is seldom disturbed by noisy surroundings. One reason is that he does not hear the noises which disturb persons with normal hearing. Another is that those who are talking to him automatically speak more loudly because of the noise of the surroundings. In a sense, therefore, his conductive hearing loss is compensated for.

From the prognostic standpoint, patients with conductive deafness can often be helped if they are treated early enough. Their disability can be arrested, improved, or circumvented by various methods. They do well with hearing aids, far better, in fact, than patients who are nerve-deaf. Finally, a selected number of patients with conductive loss of hearing caused by otosclerosis can be benefited or even cured by the fenestration operation.

Nerve Deafness.—The sensory or nerve type of deafness results from some pathologic process which affects the sensory system of the inner ear. Sounds pass normally to it, unless they are prevented from reaching it by an associated conductive deafness, but they cannot be perceived because the nerve is diseased or destroyed.

The commonest cause of nerve deafness is senescence, the simple process of growing old. Sometimes nerve deafness is congenital. Sometimes, as just intimated, it is secondary to prolonged conductive deafness. Other causes include infectious diseases, especially syphilis; various toxemias; direct or indirect trauma; prolonged work in a noisy environment; and the use of certain drugs. Quinine, given to induce labor, may be responsible for irreparable hearing loss in the child.

Streptomycin administered in large amounts over long periods of time can also cause serious loss of hearing.

In nerve deafness the loss is usually in the high tones. Consonants are not heard at all, and the deafened person must therefore depend on differences, which are usually slight, among the sounds which he does hear. Tinnitus practically always accompanies this type of deafness. It is so uniformly present, in fact, that some otologists believe that its occurrence should always be regarded as a warning that impairment of the function of the acoustic nerve is occurring. The tinnitus is high-pitched and is of the ringing or whistling variety.

Clinically the nerve-deaf patient presents a decided contrast to the patient with conductive deafness. His voice is usually loud: He adjusts it to his own lack of ability to hear, and, unconsciously, he makes the same adjustment for others that he makes for himself. If the surroundings are quiet he sometimes can hear relatively well. If they are noisy he cannot hear at all because he loses the small differences in sounds which must be perceived if one is to understand what is being said.

As might be expected, the prognosis in nerve deafness is much poorer than in conductive deafness, since nerve deafness arises from degeneration of delicate and essential elements of the sense organ or nerve. It seldom responds to medical treatment, and the nerve-deaf person uses a hearing aid much less satisfactorily than the person with conductive deafness. His rehabilitation therefore usually depends upon such nonmedical measures as lip-reading and conservation of residual hearing.

Central Deafness.—In the central type of deafness the disability arises either on a functional basis or is the result of some abnormality of the hearing centers in the brain. Both the conductive and the sensory systems of the ear itself are intact. This is a highly specialized variety of deafness, which demands highly specialized treatment, and it would not be profitable to go into it further in a general discussion such as this.

MANAGEMENT OF THE DEAFENED CHILD

The causes of deafness in childhood are much the same in all series that have been studied. About 60 per cent of the affected children are born deaf. The remaining cases are about equally divided between infections of the ear, nose and throat, toxic neuritis following scarlet fever and mumps, and meningitis. There is an uneasy feeling at the present time that the careless use of antibiotics in middle ear disease, as a substitute for myringotomy, is increasing the proportion of deafness in this category.

A rather tragic reason for deafness in childhood is the tendency of deafened adults to intermarry because their disability brings them together in social and business life. This is unfortunate. The children of such marriages are very likely to be deaf themselves. There is, of course, no ready solution for this problem, but deafened persons who plan to marry should be told bluntly that the welfare of possible offspring of the union cannot be ignored.

The clinical picture which the deafened child presents depends upon the period of life at which his disability has developed. If he was born deaf, or if he became deaf before his language patterns were set, he will be unable to talk and will be a so-called deaf-mute. If, on the other hand, his hearing loss developed after language patterns had been established to any degree, he will be able to speak but his speech will be unintelligible.

These phenomena are readily explained. The development of speech in childhood is chiefly an auditory function. The child learns to talk from building habits of listening. If his hearing is defective, he either fails to interpret correctly whatever sounds he may hear, or he learns to substitute other senses for the auditory faculty. In other words, faced with the problem of adjusting to the world in which he lives, the handicapped child

seizes upon the sensory channels that will serve him most effectively, that is, vision and touch, and makes them his primary means of establishing communication with the outer world. Sounds assume minor importance if they are heard at all. As a result, the speech faculty is completely inhibited, or is retarded and, if it develops at all, is imperfect. Even if the auditory disability occurs later in childhood, after the speech patterns have been set, degeneration of speech often follows because the ear serves as a guide to the accurate control of the speech mechanism. Exactly the same type of speech degeneration may occur in the adult whose hearing has become impaired.

The Problems of the Deafened Child.—The hard-of-hearing or deafened child presents three problems, a social problem, a psychological problem, and an economic problem.

1. The child who is hard-of-hearing cannot keep up with his class in school or with children of his own age. Typically, he is inattentive. He makes frequent requests for repetitions of spoken words. He cups his hand to his ear and cocks his head in the direction of voice or sound. He copies dictation. His response to music is indifferent. His speech is abnormal or actually defective. Because he cannot follow oral directions, he seems disobedient and he is reluctant to participate in activities which require oral communication, such as dramatics. He is constantly daydreaming.

Sooner or later the deafened child drops back in school and his associates become younger children. His whole environment is then wrong. His physical equipment and mental tastes are on one age level but his scholarship forces him into a younger group, too young to comprehend his difficulties. Younger children find it hard to understand him. They consider him stupid, even though he outstrips them physically. Their reaction to the situation is not only not to accept him but to ridicule him and ostracize him.

2. The sensitive child and the aggressive child react differently to such a situation. The sensitive child develops a mass of emotional conflicts, which ultimately result in an inferiority complex. He is bewildered, uncertain and afraid. The aggressive child, on the other hand, fights back with any means at hand. At first he is the mischief-maker and the fighter. Eventually he is the truant, the liar and the thief. In short, extreme introversion and other forms of atypical behavior frequently serve as compensations for the child who feels socially inadequate and who wishes to attract attention to himself.

3. The economic aspects of deafness in childhood are both personal and communal. The introvert is the potential dependent and pauper. The extrovert is the potential delinquent and criminal.

These eventualities, of course, lie in the future, but even in his school years the hard-of-hearing child is an economic drain upon the community. Many more deafened children than normal children are retarded in their grades, chiefly because of their inability to read. This is shown by the enormous improvement which can be accomplished by the use of a single remedial method, lip-reading. In view of the high cost of education today, it is not necessary to labor the point that the disability of the deafened child places an additional drain upon the school systems of all communities.

Diagnostic and Therapeutic Routine.—Fortunately, the day is rapidly passing when the disability of deafened children was merely accepted as beyond relief. A great deal can be done for them by modern methods of treatment, and it is worth doing. It has been shown that, except for their inability to speak, their mental capacity is quite as good as that of children who can hear. Tests based on the exercise of nonverbal intelligence leave no doubt of this intellectual equality. Even the most totally deaf child can be taught speech and lip-reading.

There is another hopeful aspect of this disability. Modern apparatus has demon-

strated that children (as well as adults) who were formerly thought to be completely deaf frequently have some residual hearing upon which to build. The principle of this apparatus, which is useful for teaching as well as for diagnosis, is that it delivers sounds of very high intensity, without distortion and without the discomfort and pain usually caused by distortion.

The redemption of deaf children depends upon their identification. In babies this is naturally more difficult than in older children or adults. The most useful methods are based on eliciting a response, the cochlear-palpebral reflex, to such stimuli as clapping the hands, blowing a whistle or ringing a bell when the child's head is turned away, or by ringing a bell or producing some other sound near his ear when he is asleep. If his hearing is normal, or if he has any functional hearing at all, he will respond to the sudden loud noise by blinking his eyes.

When the child is older and in school, the deafness is likely to be apparent from the characteristic behavior which has been described. This behavior, of course, is not always the result of an auditory disability, but it so frequently arises from it that auditory testing should be a fundamental part of the investigation into its causes.

Every child in whom hearing impairment is suspected should receive a thorough physical examination and a detailed local investigation, of which audiometric testing is an essential part. These studies, furthermore, should be carried out as soon as hearing impairment is suspected; many a loss has become irreparable because investigation into it has been delayed.

The selection of therapy depends upon the conditions found in the special case. Disease of the tonsils, adenoids, middle ears and paranasal sinuses should be treated by appropriate measures, including surgical measures when they are indicated. Recurring colds and allergic conditions should be managed according to the etiologic factor underlying them. Most nerve-deaf children have an aggravating conduction deafness superimposed upon the nerve deafness, and this factor is often greatly improved by the correction of local conditions. X-ray and radium may be used cautiously, on the proper indications.

Nonmedical measures include auditory training on the basis of whatever degree of residual hearing is present; the use of a hearing aid, which is practical even in very young children; speech training for children whose speech has been affected or seems likely to become affected; instruction in lip-reading; and psychologic, educational and vocational guidance according to the individual need. Simple expedients are often extremely effective. In the child of school age, for instance, the use of the so-called roving seat technique in the classroom often multiplies the learning ability.

The infant or the very young child demands special training, which should be instituted as soon as the disability is discovered, in order that the acoustic handicap shall not retard his mental development. It has been estimated that the average deafened child is retarded two years mentally and five years educationally. This is not usually because of lack of mental ability but because of lack of early training. The normal child receives a good deal of education, even though much of it may be intangible, and acquires a more or less satisfactory vocabulary, in the home, before he goes to school. Only in exceptional cases, when the parents have specially trained themselves to help him, does the deafened child receive such training. Yet children of 2½ or 3 years of age do well if they are placed in special nursery schools for handicapped children, where they can receive individual training. These schools retrieve for the deafened child some of the valuable early years which otherwise would be lost.

In the school, as the growing child grasps the process, understanding and correlation are sought between the object visualized, the printed word which describes it, the lip movements which the

teacher makes when she speaks the word, and the breathing and muscular movements necessary when the child tries to imitate her. It takes great patience, but eventually syllables learned in this fashion can be built into words and words can be built into sentences. Slowly and systematically a limited, and then a more elaborate, vocabulary is achieved. Eventually the deafened child often learns to talk and to read quite as well as a normal child. The process of learning is simply longer, slower and harder. Simultaneously, his mind is developed and trained as rapidly as his increasing vocabulary permits. When once the means of communication between teacher and pupil have been established, the deafened child's education proceeds parallel to that of the normal child. This is an extremely important consideration. The more normal the deafened child can be kept in all respects, the better will be his adjustment to his disability and to the world.

It is not only desirable, it is essential, that parents participate in the training of the deafened child. Very young children can be taught, and taught expertly, by parents who take the trouble to learn how to do it. Excellent training can be obtained from the correspondence courses conducted by the John Tracy Clinic in Los Angeles. These courses are invaluable in remote areas, where there are no nursery schools, and they are useful everywhere, for the relationship which they help to establish between parents and child is as desirable psychologically as is the formal training in speech which the child thus secures.

MANAGEMENT OF THE DEAFENED ADULT

The problems of the deafened and hard-of-hearing adult differ in certain respects from those of the deafened child. The speech abnormalities characteristic of deafness in childhood do not appear in the adult, whose speech patterns have long since been formed, though, as already pointed out, speech degeneration may occur when the function of the ear as a guide to accurate control of the mechanisms of speech is lost. The voice loses its cadences and becomes lifeless and monotonous. Its quality becomes rigid. Finally, control of its levels are lost and it becomes unduly loud or unduly low. The adult therefore needs training to prevent speech deterioration and requires substitute channels for the control of his voice, since the ear no longer serves as an effective monitor. Conservation of speech should be part of the training of the deafened adult, particularly when the hearing loss is of the common progressive type.

In the adult, just as in the child, loss of hearing has its social, psychologic and economic aspects:

The effect of hearing loss on the individual's recreational activities is pronounced. The average man is gregarious and is happiest when he is in a group. He craves and needs social contacts. Any impairment of hearing tends to shut him away from them. This is even truer of women than of men, who have business outlets for self-expression which the average woman does not possess. The outside contacts which she needs become closed to her because of her hearing handicap and both her emotional life and her psyche suffer as a result.

There are a number of reasons why loss of hearing eventually leads to a greater or less degree of depression. The deafened person has lost the mental stimulation that hearing provides. He has lost his sense of security, because he can no longer rely on sound as a signal of impending danger or as an indication of other events in everyday life. He feels left out of things. He no longer feels that he is a part of the changing pattern of the world about him, and he no longer feels the necessity to be part of it. He no longer feels that he has sufficient backbone to cope with life. He becomes bewildered and depressed. Depression causes him to withdraw from society, with resulting loss of productive efficiency. In some cases deafness has led to suicide. The late Dr. Walter Hughson was correct when he said that deafness has a psy-

chologic impact upon the affected individual that is even more profound than the impact of blindness.

With present-day diagnostic methods it is not difficult to identify the hard-of-hearing adult and with present-day therapy much can be done for him. Treatment is conducted on the same general principles as the treatment of children except for the special emphasis on hearing aids and the special applicability of a particular surgical technique, the fenestration operation.

Hearing Aids.—Generally speaking, better results from hearing aids are obtained by younger adults than by those in the older age group. The modern hearing aid is a precision instrument to which many of the objections once raised are no longer applicable. Its batteries are now longer-lasting. It is light in weight and relatively inconspicuous. Hearing aids, in fact, are so generally used today that they never attract a second glance.

The primary purpose of a hearing aid is to raise the intensity of a sound loud enough for it to be heard, and to be heard without discomfort. Since speech is the sound the deafened person is most interested in, the aid must be selected, fitted and adjusted to deliver speech as naturally as possible.

The amplification which modern hearing aids provide is adequate, and the quality of the sound which they deliver is steadily improving. The same instrument, however, is not universally satisfactory. Because hearing losses differ in kind and degree, deafened persons differ in the loudness and quality of the sounds which they can tolerate. A person who secures a hearing aid must therefore, in a sense, shop around for it. He must test various models until he locates the one which does the most for his hearing. He requires the help of trained personnel during this period. Mail-order, over-the-counter methods of selection can result only in dissatisfaction. A hearing aid is a complicated and delicate instrument, and all features of its selection and fitting require expert training and considerable experience. This includes the fitting of the ear mold, which is a vital part of the equipment. Also, after the aid has been selected and fitted, a period of auditory training is necessary in its use, in the discrimination of the sounds which make up speech, and in the correlation of the use of the aid with lip-reading.

Otosclerosis and the Fenestration Operation.—Although the fenestration operation is applicable only in otosclerosis, and only to a certain proportion of persons with that disease, it is still the most dramatic advance in the treatment of loss of hearing which has occurred in the last hundred years.

Otosclerosis develops on a mechanical basis: The bony capsule surrounding the inner ear is normally the hardest bone in in the body. In this disease it is replaced by a softer kind of bone, which grows steadily and profusely. The commonest site af the new bone growth is the region surrounding the oval window. In some 90 per cent of the cases in which this happens there is no disturbance of hearing. In the remaining 10 per cent, because fixation of the stapes occurs, hearing is affected. When the footplate of the stapes is firmly fixed in the oval window, it can no longer move freely and the vibrations carried to it from the eardrum through the malleus and incus are no longer effectively transmitted to the fluid of the inner ear. The effect is much like that of some forms of arthritis, in which the movements of the fingers, the knees or the spine become limited. Otosclerosis and arthritis, in fact, have a number of points in common. The resulting hearing loss is a conduction type of deafness, although the disease, in addition, may involve the cochlea and cause degeneration of some of the sensory cells. If the hearing loss persists, nerve degeneration almost invariably follows.

Clinical otosclerosis takes the form of chronic progressive deafness for which there is no demonstrable cause; the eardrum and all other parts of the aural

apparatus are apparently normal. Otosclerosis is frequently hereditary. It is predominantly a disease of youth and young adult life, which differentiates it from most other forms of acquired deafness. There is usually a considerable amount of associated tinnitus. All of these points, together with its progressive character, make otosclerotic deafness fairly simple to diagnose.

Statistics suggest that this variety of deafness occurs in 1 of every 8 deafened women and in 1 of every 15 deafened men. If they are correct, this disease must affect perhaps a million persons in the United States today. It was formerly considered hopeless. Now the delicate technique of the fenestration operation offers a real chance of improvement and even of cure to the limited group of carefully selected persons for whom its use is justified. The identification of this admittedly small group is one more reason why all deafened persons should be examined as soon as their auditory disability is discovered.

SUMMARY

In recent years the lot of the deafened person has ceased to be regarded as hopeless. Diagnosis has improved, and so have methods of therapy and rehabilitation. This is true at all periods of life, from infancy to old age. The general facts of the situation and the new diagnostic and therapeutic possibilities warrant a new outlook. The general practitioner has an important role to play in the accomplishment of these new objectives. He is our richest source of case-finding, and the lot of the deafened population will be improved and alleviated when once that source is properly tapped.

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RAUWOLFIA AND AMPHETAMINE THERAPY IN THE TREATMENT OF PSYCHOSOMATIC COMPLAINTS

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The rising tide of mental and nervous disorders is a matter of great concern to every practicing physician. We are all too aware of the truth of the observation of Brill [1] that emotional factors, in one form or another, are dominant findings in three-fourths of our patients. Probably about 10 per cent of these patients will develop definite mental illness, and 5 per cent may ultimately be admitted to a mental hospital, but in the remaining 90 per cent simple office management is needed. Informal psychotherapy, as practiced (knowingly or unknowingly) by every successful physician, will accomplish much in these cases. But skillful use of the proper drug therapy will be of enormous benefit in a high percentage of patients with psychogenic complaints.

Amphetamine sulphate has long been used for its mood-ameliorating action, its antidepressant action, and its ability to restore mental alertness and to dispel psychogenic fatigue. Unfortunately, the drug also produces uncomfortable side reactions, including wakefulness, tremor, and a sensation of cardiac pounding. As a result it has become almost customary to combine barbiturates with sympathetic-comimetic drugs in order to reduce the side reactions. This is usually effective, but is open to the many objections that surround the habitual use of barbiturates in any long term therapy, particularly in a group of patients who may be especially prone to habituation.

Among the newer mood-ameliorating drugs that have recently been made available, Rauwolfia serpentina holds out the greatest promise. While this drug has been most used in this country for the treatment of hypertension, it also has the virtue of having a characteristic "tranquilizing" and mood-ameliorating action. Thus Wilkins and Judson,[2] who were among the first investigators to report on the use of the drug in this country, described its mild sedative action, its ability to decrease irritibility and to improve the personality, and characterized these symptomatic benefits as the most easily identifiable effects of the drug. Ford and Moyer [3] also described the sedative action of the drug and its superiority to pheno-

TABLE 1

	PATIENT	AGE	SEX	PRESENTING SYMPTOMS	RAUWIDRINE DOSAGE	LENGTH OF THERAPY WEEKS	RESULTS	SIDE EFFECTS
1.	SR	44	F	Chronic headache, obesity, climacteric	1 tab. t. i. d., a. c.	9	Headaches relieved. Weight reduced 2 Lbs. per week. Nervousness, flushes, and depression relieved.	None
2.	MP	43	F	Climacteric, obesity, depression	1 tab. t. i. d. ½ hr. a. c.	7	Flushes eliminated. Weight reduced 2 Lbs. per week. Depression ameliorated.	None
3.	YG	24	F	Depression and crying spells	1 tab. t. i. d., p. c.	6	Depression relieved—mood elevated. Increased appetite and activity.	Wt. gain
4	FG	46	M	Marked obesity, climacteric, Paget's disease of leg	1 tab. t. i. d. ½ hr. a. c.	5	Weight reduced 20 Lbs. in four weeks. Mood elevated and nervous tension relieved.	None
5.	EB	62	F	Tension headaches, depression	1 tab. t. i. d. ½ hr. a. c.	8	Headaches relieved and mood elevated. Weight loss of 20 lbs.	None
6.	AM	31	M	Depression, abdominal discomfort following overeating when nervous	1 tab. t. i. d. ½ hr. a. c.	3	Mood elevated, abdominal discomfort relieved. Weight reduced by 12 Lbs.	None
7.	JD	16	F	Extreme nervousness, insecurity, obesity, depression	1 tab. t. i. d. ½ hr. a. c.	7	Nervousness and depression relieved. Better personality evolved. Weight reduced 35 Lbs.	None
8.	AC	38	F	Marked obesity, depression, tension, headaches, dysmenorrhea, irregular menstrual cycles	1 tab. t. i. d. ½ hr. a. c. (+ other medication)	7	Weight reduced 45 Lbs. Mood elevated and headaches relieved. Menstrual cycle more regular and dysmenorrhea markedly decreased.	None
9.	AS	49	F	Obesity, depression, low backache	1 tab. t. i. d. ½ hr. a. c.	8	Weight reduced 25 Lbs. Mood elevated, backache eliminated.	None
10.	CT	34	F	Depression, obesity, irregular menses (scanty)	1 tab. t. i. d. ½ hr. a. c.	10	Mood greatly elevated. Weight reduced 30 Lbs. Menses regulated.	None
11.	EP	59	F	Marked obesity, depression, tension headaches	1 tab. t. i. d., a. c.	8	Weight reduced 15 Lbs. Depression relieved. Complete relief of tension headaches.	None
12.	ALT	54	F	Depression, tension headaches, crying spells, irritability, anorexia, inconstant back pains and abdominal cramps	1 tab. t. i. d., p. c.	11	Mood elevated. Tension headaches relieved. Crying and irritability eliminated. Increased appetite.	Wt. gain
13.	AC	21	F	Obesity, depression, irritability	1 tab. t. i. d. ½ hr. a. c.	8	Weight reduced 24 Lbs. Mood elevated. Activity increased, irritability lessened.	None
14.	YD	19	F	Obesity, depression, irritability	1 tab. t. i. d. ½ hr. a. c.	6	Weight reduced 15 Lbs. Mood elevated. Depression relieved. Better personality evolved.	None
15.	YT	24	F	Obesity, irregular menses, irritability and depression.	1 tab. t. i. d. ½ hr. a. c.	4	Weight decreased 12 Lbs. Irritability and depression lessened.	None
16.	KP	19	F	Marked obesity, moodiness and depression	2 tabs. t. i. d. ½ hr. a. c.	5	Weight decreased 20 Lbs. Personality improved. Depression and crying relieved.	None
17.	WC	38	M	Obesity, moodiness, depression	1 tab. t. i. d., a. c.	5	Weight reduced 18 Lbs. Mood elevated. Depression lessened.	None
18.	WV	14	M	Marked obesity, apathy, moodiness	1 tab. t. i. d., a. c.	4	Weight reduced 20 Lbs. Mood elevated. Personality improved. Activity increased.	None
19.	RLH	56	F	Obesity, depression, irritability, weakness	1 tab. t. i. d., a. c. (+ other drugs)	4	Weight decreased 10 Lbs. Mood elevated. Depression and irritability lessened.	None
20.	SC	69	F	Depression, obesity and vague abdominal cramps	1 tab. t. i. d. ½ hr. a. c.	5	Weight decreased 15 Lbs. Mood elevated. Abdominal discomfort eliminated.	None
21.	AD	50	M	Obesity, irritability, abdominal cramps	1 tab. t. i. d. ½ hr. a. c.	3	Weight reduced 10 Lbs. Mood elevated. Abdominal cramps eliminated.	None
22.	LC	12	F	Obesity, moodiness, irritability	1 tab. t. i. d. ½ hr. a. c. (+ thyroid)	9	Weight decreased 15 Lbs. Mood elevated. Irritability relieved.	None
23.	BSC	8	F	Obesity, irritability	1 tab. t. i. d., a. c. (+ thyroid)	10	Weight reduced 15 Lbs. Irritability relieved.	None
24.	MK	72	F	Arthritis, depression	1 tab. t. i. d. ½ hr. a. c.	11	Weight decreased 30 Lbs. Mood elevated. Arthritic condition improved.	None
25.	DC	42	F	Obesity, depression, irritability	1 tab. t. i. d. ½ hr. a. c.	8	Weight reduced 22 Lbs. Mood elevated, irritability lessened.	None

barbital in its ability to decrease anxiety and improve the sense of well being, yet with very little soporific effect. Extracts of Rauwolfia serpentina produce a mild sedation, mild bradycardia, moderate fall in elevated blood pressure, and a pronounced sense of well being. Furthermore, the hypotensive action is negligible in normotensive patients, whereas the other desirable reactions are maintained.

Thus it seems logical to combine amphetamine and Rauwolfia, and such a combination has recently become available. This is a preliminary report of the use of Rauwidrine,* each tablet of which contains 5 mg. of amphetamine and 1 mg. of Rauwiloid * (Rauwolfia alkaloids), in patients with a variety of functional complaints, as well as organic complaints. Data on 25 representative patients are tabulated here, (Table 1) and demonstrate that results have been most gratifying.

DISCUSSION

The 25 patients included in the present series are fairly representative of those seen daily by the general practitioner. In most of these patients, obesity was a clinical problem accompanying the psychological distress. Hamburger [4] has stressed the high incidence of obesity, which is largely psychogenic in nature and a symptom of underlying emotional illness, especially hysteria and depression. Walker [5] has pointed out that in view of the various neuroses reported to precede, accompany, and result from obesity, one might suspect that in some cases the psychological factors may be the common etiologic mechanisms.

From the clinical results given in the preceding table, it can be seen that Rauwidrine therapy has proved eminently satisfactory for these patients, and served to interrupt the cause-symptom cycle of obesity and emotional distress. The combination of Rauwolfia and amphetamine effected a definite improvement in mood, with relief of symptoms, and a reduction of appetite, with subsequent loss of weight. In only 2 patients (numbers 3 and 12) were any side effects noted. These reported a gain in weight, but it should be noted that obesity was not a presenting symptom in these cases.

* Riker Laboratories, Inc., Los Angeles, California.

CONCLUSIONS

1. A combination of amphetamine and Rauwolfia serpentina has proved very effective therapy for mood elevation and appetite suppression.

2. The mildly sedative and bradycardiac action of the Rauwolfia was instrumental in minimizing side actions from amphetamine.

3. The use of this combination minimizes the necessity for additional barbiturate therapy.

4. The therapy is particularly useful in patients with vague depressions and anxieties, and is worthy of more extended trial in such cases.

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SULFONAMIDE AND ANTIBIOTIC SENSITIVITY OF DYSENTERY BACILLI ISOLATED IN THE UNITED STATES, JAPAN, AND KOREA: A COMPARATIVE STUDY

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Most strains of dysentery bacilli were apparently sensitive to sulfonamide drugs when they were introduced to the medical profession around 1940. Sulfonamide-resistant † dysentery bacilli were clini-

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† This term is used to designate resistant strain to "effective" sulfonamides such as sulfadiazine, sulfathiazole etc.

cally observed in 1946, and started to increase in number in 1948 [1] and reached a high percentage of 80 to 90 of all the strains isolated in the Tokyo area in 1950.[2]

Zimmerman et al [3] also report ineffectiveness of sulfonamide drugs in Korea in the treatment of bacillary dysentery due to the prevalence of drug-resistant strains.

This problem has not been acute in the United States because several antibiotics replaced these chemicals. However, it appeared interesting to make a comparative sensitivity study of dysentery bacilli isolated from three different parts of the world to see the attitude of these organisms to these therapeutics under different circumstances.

MATERIALS AND METHODS

U. S. strains

Twenty strains of *Shigella flexneri* type 2a were selected for the study because this type of strain is most prevalent in the U. S. for a long time since the discovery of dysentery bacilli in this country,[4] and also, because this type might have had the most chance to come into contact with sulfonamide drugs and antibiotics by chance either when they were actually causing clinical dysentery or were carried by the people showing no signs of dysentery but some other illness in which these drugs were indicated. Twelve strains were isolated in 1952, and 8 strains were isolated in 1953. One strain each of *Shigella flexneri* type 1b and 2b which were isolated before 1952 were later added to the study.‡

Japanese strains

Twenty-eight strains, isolated mostly in this hospital in 1954, were subjected for the study; they consisted of 1 strain of Group A2, 1 of flexneri type 1a, 10 of flexneri type 2a, 10 of flexneri 2b, 1 of flexneri 3a, 3 of flex. Var. X, 1 of *Sh. sonnei* and one which was agglutinated by group B polyvalent serum.**

Korean strains

Eleven strains isolated in 1954 were studied. They were 1 strain each of flex. 1a, 2a and 2b, 2 strains of flex. 3, 2 strains of flex. 4a, 3 strains of flex. 5, and 1 of flex. 6.***

METHODS

The test tube method previously described was used in the assay of sulfadiazine and antibiotic sensitivity determinations. The pH of the semisynthetic medium for sulfadiazine was adjusted to 7.2 and concentrations of the drug were 0.25, 2.5 and 25 mg. per cent (10^{-5}, 10^{-4}, and 10^{-3} Mol, respectively). The results were read at twenty-four hours instead of one week as previously described.[1]

Ordinary broth, containing 1 per cent each of peptone and meat extract and 0.1 per cent of NaCl, at pH of 7.2, was used in the assay of 5 antibiotics and the incubation period was one day for all the antibiotics. Diluted broth (Broth B in the previous paper) was not used in the assay of streptomycin in the present investigation in order to make the experimental conditions equal and also because the results obtained with diluted broth did not comply with clinical observations of the use of antibiotics in bacillary dysentery.

Crystalline and standardized antibiotics were used in the present study and this resulted in the generally lower minimum growth inhibiting concentrations of antibiotics than in the previous investigation.[2]

RESULTS

Tables 1 and 2 show the minimal growth inhibiting concentrations of sulfadiazine and antibiotics, respectively. Bacilli growing at sulfadiazine concentration of 25 mg. % were arbitrarily classified as sulfonamide-resistant. It was then revealed that only 1 out of 14 strains isolated in and before 1952 in the U. S. was resistant, whereas 6 out of 8 strains isolated in 1953 were resistant indicating a statistically significant difference.

About 80 per cent of Japanese strains

‡ All these strains were kindly supplied by Dr. W. H. Ewing of the C.D.C., Atlanta, Georgia.

** Kindly supplied by Dr. N. Kasai.

*** Kindly supplied by Dr. W. C. Eveland of the 406th Medical General Laboratory, U.S. Armed Forces in Tokyo.

TABLE 1.
MINIMAL GROWTH-INHIBITING CONCENTRATION OF SULFADIAZINE

SULFADIAZINE CONCENTRATION		MG PER CENT 0.25	2.5	25	OVER 25	TOTAL
Country	*Year*					
U.S.	1952	10	1	2	1	14
	1953	1	1	0	6	8
Japan	1954	0	5	0	23	28
Korea	1954	4	1	0	6	11

TABLE 2.
MINIMAL GROWTH-INHIBITING CONCENTRATION OF ANTIBIOTICS IN MCG/ML.

COUNTRY	U.S. STRAINS						JAPANESE STRAINS						
CONCENTRATION	1.0	2.5	5.0	10	Mean	Total	1.0	2.5	5.0	10	100	Mean	Total
Streptomycin			13	9	7.0	22			0	27	1	10 *	28
Chloramphenicol	19	3			1.2	22	11	16	1			2.0	28
Terramycin	6	16			1.9	22	1	24	3			2.7	28
Aureomycin	6	16			1.9	22	0	10	16	1		4.1	28
Achromycin	1	21			2.4	22	0	15	13			3.7	28

* The strain growing at 100 mcg/ml was arbitrarily omitted from calculation to give a general conception.

were sulfonamide-resistant conforming with results of other workers in Japan, and more than half of the Korean strains were resistant.

Dysentery bacilli isolated in both the U. S. and Japan were, in general, still sensitive to five antibiotics of streptomycin, chloramphenicol, oxytetracyclin, chlortetracyclin and tetracyclin.

There was a single strain of *Sh. flex.* type 2b which was highly resistant to streptomycin. This strain was equally sensitive to other four antibiotics as other streptomycin-sensitive strains. Such a highly oxytetracyclin-resistant strain of dysentery bacilli reported from this hospital last year [5] was not recovered in the present study.

The minor difference in the sensitivity to antibiotics of Japanese and U. S. strains is not considered significant because the former consisted of several heterogenous subtypes of dysentery bacilli, whereas the latter consisted of homogenous *Sh. flex.* type 2 strains and also because the difference in the mean value of the minimal growth inhibiting concentrations was considered to be within the range of technical error.

DISCUSSION

It was interesting to see a sharp rise in the percentage of sulfadiazine-resistant dysentery bacilli in the U. S. where antibiotics have been in general use since 1945 to 1948. It is unlikely that sulfonamide drugs were abused by laymen in the treatment and/or prevention of dysentery and other diseases because regulations are strict for the sale of these drugs and the people in general can not get them without the prescription of the doctors. This type of sharp rise was observed around 1948 in Japan. This delay of five years may be due to a more appropriate use of sulfonamides in the U. S. or to less frequent man to man passage of the bacilli.

Four to eight years had passed before the present strains were isolated since the antibiotics have become available for medical use in the U. S., but none of the 22 strains tested showed any increase in resistance to the antibiotics. This was the same with the strains isolated in Japan where antibiotics have been used for these four years, except a few occasional strains which were highly antibiotic-resistant. This exception may be due to a much higher incidence of bacillary dysentery in Japan resulting in more frequent passage of the bacilli through human intestines.

SUMMARY

1. Sulfonamide-resistance of *Sh. flexneri* type 2a strains which are most prevalent in the U. S. abruptly rose in 1953.

2. About 80 per cent of Japanese and 50 per cent of Korean strains isolated in

1954, were sulfonamide-resistant.

3. Nearly all of the U. S. and Japanese strains were sensitive to five antibiotics (streptomycin, chloramphenicol, oxytetracyclin, chlortetracyclin and tetracyclin) like the strains isolated before the antibiotics were introduced for medical use.

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CAUSES OF DEFECTIVE SPEECH IN CHILDREN: ANALYSIS OF 140 CASES

JEANNETTE K. LAGUAITE, Ph.D. *
NEW ORLEANS

Speech and language are the tools whereby man manipulates his environment. His needs and desires are expressed through speech. By means of communication he learns and develops. Language is the outward and concrete form of symbolization and abstraction, and as such, is closely related to intelligence.

For that reason parents are usually very concerned when their children do not begin to talk as soon as they think they should. Many seek help with the idea that if the child could only talk he would be all right. Actually, the situation is just the reverse. If the child were normal, he *would* talk. Hearing loss, mental retardation, or other handicaps are often not recognized until the parents begin to inquire about a child's lack of proper speech development. Therefore, doctors, or other persons consulted about a speech problem in a young child should not delay diagnosis by telling the parents that the child will "outgrow it."

An analysis of 140 cases seen in the Speech and Hearing Center at Tulane Medical School during a two-year period (March 1952 - March 1954) presents some interesting data on the etiology of atypical speech development.

The cases have been divided into two groups: (1) those who were not able to communicate at all by means of speech or could say only one or two words, such as "mama", "bye-bye", which was not commensurate with their chronological age level, and (2) those with some language development but whose speech was characterized by so many omissions, substitutions, and distortions of sounds as to be almost entirely unintelligible. These latter cases have been put in the data under the heading "defective" speech. Children who had simply one or two defective sounds, who stuttered, or who had defective speech due to cleft palate, cerebral palsy, or other obvious physical defect have not been included in the study.

The term "functional articulation" is applied to those cases in which no pathology can be demonstrated, but, according to Johnson et al,[1] " . . . seem to be traceable to no other cause than a simple failure to learn the correct patterns of normal speech."

Examination of these children included the following procedures and, in many cases, extended over several interviews.

1. *Case history.* A thorough case history was taken to elicit information relative to the prenatal health of the mother, the birth and neonatal health of the child and his subsequent development. Such facts as age of sitting alone, walking alone, history of illnesses, age of toilet training, etc., are all important factors in evaluating the general growth and development of the child physically and emotionally. The social history is important in bringing out any emotional maladjustment which may be operating in the case.

2. *Audiometric examination.* The elaborateness of this examination depends upon the age of the child, his ability to understand directions, his co-operativeness and his general response to sounds in the environment. It may involve the use of noise-makers, music, speech tests, puretones, all of which are of controlled intensities and frequencies, and which are presented to the child in sound-treated rooms. They may be delivered through a

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loud-speaker or through individual earphones.

3. *Ear, nose, and throat examination.* In the event the child has a hearing loss, particularly of the conductive type, the etiology can usually be established by a thorough otolaryngological examination.

4. *Psychological tests.* The children are usually given certain screening tests to determine approximate level of functioning. If it seems necessary, then complete psychometric tests are administered.

5. *Neurological examination.* If from the birth history or other information and from observation the child seems to have some neurological involvement, then he is referred for a neurological examination and an electroencephalogram if necessary. Some children are also referred for psychiatric evaluation if the case seems to warrant further exploration in that field.

6. *Pediatric examination.* Since many of our cases are referred from pediatricians, it is not routine for them to be reexamined. However, some cases who did not come from pediatricians are sent for a pediatric examination.

7. *Careful clinical observation.* This last procedure is perhaps one of the most valuable indicators of the child's functioning. His reaction to the test situation, his reaction to his parents and to strangers, his approach to the tasks demanded of him, his performance of those tasks, all contribute to the qualitative evaluation of the child as a whole. This observation may be extended over a period of several visits.

Table 1 shows the ages at which the children were first seen. The median age at which the children were brought to the Center falls in the 4-4½ age group for the children with no speech and in the 5½-6 age group for those with defective speech.

Table 2 shows the etiology of the cases. Those included in the group marked "overlapping etiology" are those in which it was impossible to tell which was the most important factor operating when there was more than one, such as mental retardation and hearing loss, or hearing loss and emotional disturbance.

TABLE 1.
AGE AT WHICH CHILDREN WERE FIRST SEEN

AGE	NO SPEECH	DEFECTIVE SPEECH
1-1½	2	
1½-2	2	
2-2½	7	
2½-3	7	1
3-3½	5	1
3½-4	3	5
4-4½	4	2
4½-5	3	12
5-5½	5	12
5½-6	6	13
6-6½	5	11
6½-7	3	6
7- 8	1	4
8- 9	2	3
9-10	1	3
10-Over	3	8
Total	59	81

In those cases which were undiagnosed, it was usually because the parents did not follow up and bring the child in for a sufficient number of examinations in order to get all the information necessary to arrive at a definite diagnosis.

CONCLUSIONS

1. Children with no speech at all were brought to the Center at a much earlier age than those who had developed some speech.

TABLE 2.
ETIOLOGY OF CASES

ETIOLOGY	NO SPEECH		DEFECTIVE SPEECH	
	No.	%	No.	%
Hearing loss	23	38.9	15	18.5
Mentally retarded	24	40.6	23	28.3
(With brain damage	19	32.2	14	17.2
(Without brain dam.	5	8.4	9	11.1
Emotionally disturbed	12	20.3	10	12.3
Aphasic	1	1.6	1	1.2
Functional articulatory difficulty	0	0	38	46.9
Undiagnosed	7	11.8	1	1.2
Brain damage without retardation	1	1.6	1	1.2
	68	114.8	89	109.6
Overlapping etiology	9	15.0	8	9.8
	59		81	

2. School entrance served as a stimulus to many parents to seek help for children who still had defective speech by the age of 4½. Fifty-nine per cent were brought in between the ages of 4½ and 6½.

3. Children who did not develop speech because of severe hearing loss were recognized by parents at an earlier age than the others. Forty per cent were brought in by age 3½. (2 were recognized as early as 12 months.)

4. Slightly less than half, 46.9 per cent, of all cases of defective speech were diagnosed as functional.

5. In the order of frequency of occurrence, mental retardation, 40 per cent, hearing loss, 39 per cent, and emotional disturbance, 20 per cent, were the three primary etiologies responsible for lack of development of speech.

6. In the order of frequency of occurrence, functional articulatory difficulty, 47 per cent, mental retardation, 28 per cent, hearing loss, 18 per cent, and emotional disturbance, 12 per cent, were the four primary etiologies responsible for poor speech development in children.

DISCUSSION

The statistics in the above study represent the number of cases from an unselected population. For many of the children, it was the first time any one had been consulted about the speech problem. In such an area as this, the percentages shown vary widely from those shown by other workers. For example, Myklebust,[2] at the Children's Hearing and Aphasia Clinic at Northwestern University, gives quite different percentages. However, many of the mentally retarded and deaf children are screened out so that his figures show a more selected sample with respect to aphasics and emotionally disturbed children. It is also possible that a larger sample would show different trends.

Of the 4 causes of defective or non-speech development, only that of functional articulation may be considered as non-pathological. In less than one-half of the 81 cases of defective speech and in none of the 59 cases of no speech would the child be expected to overcome his speech handicap without some special therapy. It is most essential that children be seen as early as possible and be diagnosed correctly so that they may receive the full benefit of proper educational placement and training.

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THE INCREASING RESPONSIBILITIES OF THE LOUISIANA STATE MEDICAL SOCIETY

Responsibilities of organized medicine have increased in the past decade to the point that the individual physician is called upon to contribute more in time and in financial support. Such is needed to promote professional advancement and to improve the position doctors hold today. Were such efforts not continuous, there is grave danger of general deterioration of our position, of State medicine becoming dominant, and of loss of our independence.

In Louisiana, the collective efforts of the leaders in organized medicine in the past have been most successful, and we have an obligation to them and to ourselves to continue and to carry the torch. It is with pardonable pride and general satisfaction that the doctor in this State can enjoy favorable conditions of practice. Cults and quacks do not have the sanction of law, and we have minimal legal incumberances. The doctor is esteemed in the community for what he is and for his contribution to the community health. It seems fair to estimate that the position of the doctor in Louisiana is one of the most favorable in the whole nation.

While our position is fortunate, it is maintained with increasing difficulty and expense. The individual physician has need to be informed of the many ways in which the impact of social pressures on medicine is important, and needs further to be directed as to how he can contribute to the improvement of medicine's public relations in his own office.

Recently, a plan for meeting our increasing responsibilities was considered by a special committee appointed by our president, Dr. Walter Moss. This was done at the direction of the Executive Committee. After much discussion, and in conference with the Committees on Public Policy and Legislation and on Medical Service and Public Relations, it was proposed that the Society raise dues to $50 a year and employ a fulltime lay executive assistant to the Secretary of the Society, who would meet various organization needs and among other activities would serve as a publicity agent. It was thought by such means that valuable aid would be given in coordinating the activities of the local societies, and also, in explaining our position to the public.

The many duties of the office of Secretary, as we know, are being admirably discharged, but the volume of work in this office requires daily direction. The important function of the assistant would be contact with local societies.

It is also proposed that the Society con-

sider allocating a portion of the increase in dues to a domicile fund for the Society. It is felt that by the time that such a fund would become adequate the organizational activities of the Society will require considerably increased space. It is to be expected that some members feel that the two Committees referred to above already have funds allotted and are functioning effectively. The opinion of those in the conference, with which opinion many agree, was that this is true and it would be sad for the membership if it had not been true. Now that our needs have increased the only adequate way to meet responsibilities is to campaign all the year round. This can only be done with additional funds.

It is hoped that these proposals and plans will receive thorough discussion and consideration in the local societies, and that when the House of Delegates meets provision can be made to meet our greatly increased need for organizational activity.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

MEDICAL EDUCATION AND LICENSURE

C. GRENES COLE, M. D.

On my visit to the recent meeting of the American Congress on Medical Education and Licensure held at the Palmer House, Chicago, February 5-8, I was pleased to see that the meeting was so well attended. Many subjects were presented of vital interest to medical men interested in teaching and to other physicians whose responsibility is, to secure only well qualified doctors, for the purpose of teaching, and for the care of the unfortunate people of our state so badly in need of good medical services.

At this meeting the following subjects of interest to the medical profession were discussed,— a uniform Medical Practice Act, television as applied to postgraduate medical education, the status of the future internship, legal medicine in undergraduate education, and the position and the use of the foreign-trained doctors in our respective medical programs.

This four-day meeting was sponsored by the American Medical Association Council on Medical Education and Hospitals, the Federation of State Medical Boards of the U. S., and the Advisory Board for Medical Specialties, and attended by about 700 medical educators, practicing physicians, State Medical Society secretaries, and members of State Medical Boards and Specialty Boards.

The four groups — the Federation of State Medical Boards of the U. S., the American Hospital Association, the American Medical Association, and the Association of American Medical Colleges, recommended a program which would place foreign-trained physicians and American-trained doctors practicing in this country on the same level. However, before these foreign-trained doctors could practice in the United States they would have to be thoroughly screened as to the adequate use of English and whether or not their educational attainment compared favorably with that of the students of American schools at the time of graduation.

These foreign-trained doctors, before they would be permitted to practice in the United States would be required to take an examination in Basic Medical Sciences and Major Clinical Sciences, and to meet the requirements of the respective State Boards of Medical Examiners.

The Federation of State Medical Boards of the United States, approved, in principle, a draft of a uniform Medical Practice Act, but such a draft or act would only serve as a guide, and it would not be obligatory on any State to adopt or use this uniform act.

At its closing session, the Federation passed the following resolution declaring that "the Federation of State Boards insists on the present standards of educational competence and condemns the policy of appointing interns to hospital positions who are not graduates of accredited medical schools".

Television for teaching purposes was discussed at length and thought to have great potentialities in teaching physicians in search of postgraduate medical education with a great saving of time by the teachers and was recommended for serious consideration by medical schools.

The panel on legal medicine, participated in by well qualified discussants, recommended that medical students be given adequate instruction and training that they might be familiar with the many medical legal problems which can and

do present themselves when the doctor, after graduation, begins in active practice, and the student should be further informed as to how he can avoid becoming involved in unnecessary legal problems and malpractice suits.

It would seem advisable that our two medical schools should institute such a lecture course for the good of their students and for the welfare of the medical profession as a whole. This, we feel sure, would be a service which would be appreciated by the profession and would lessen the number of malpractice suits in our state and would, no doubt, tend to reduce our premiums on malpractice insurance.

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Sec-Treas: Dr. Sidney Bullard, 3833 Jeff. Highway, New Orleans 21, La.

THIRD DISTRICT MEDICAL SOCIETY
President: Dr. Thomas Latiolais, Jr., Lafayette, La.
Sec-Treas: Dr. Robert L. Levy, 832 St. John St., Lafayette, La.

FOURTH DISTRICT MEDICAL SOCIETY
President: Dr. W. K. Eichelberger, Ringgold, La.
Sec-Treas: Dr. L. K. Mason, 803 Jordan Street, Shreveport, La.

FIFTH DISTRICT MEDICAL SOCIETY
President: Dr. Henry Guerriero, 319 Wood St., Monroe, La.
Sec-Treas: Dr. Burchell Liles, Monroe, La.

SIXTH DISTRICT MEDICAL SOCIETY
President: Dr. H. Guy Riche, Jr., Guaranty Income Life Bldg., Baton Rouge, La.
Sec-Treas: Dr. Myron A. Walker, 309 Triad Bldg., Baton Rouge, La.

SEVENTH DISTRICT MEDICAL SOCIETY
President: Dr. Louis E. Shirley, Sr., Jennings, La.
Sec-Treas: Dr. Louis E. Shirley, Jr., Jennings, La.

EIGHTH DISTRICT MEDICAL SOCIETY
President: Dr. M. J. Hair, Lecompte, La.
Sec-Treas: Dr. J. W. Deming, Alexandria, La.

MEDICAL NEWS SECTION

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
Calcasieu	Fourth Tuesday every other month	Lake Charles
East Baton Rouge	Second Tuesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Tangipahoa	Second and fourth Thursdays of every month	Independence
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

NATIONAL HEALTH CONFERENCE

A small town doctor told a gathering of national rural health leaders that all the drugs at a medical man's command are helpless in treating bad health conditions that exist in some parts of rural America.

Dr. F. S. Crockett of Lafayette, Indiana, sounded the keynote of the Tenth National Conference on Rural Health at Milwaukee by underscoring the importance of individual cooperation in combatting local health problems.

Well-equipped hospitals and experienced doctors are essential, Dr. Crockett said. But the most important solution to the whole rural health problem is "knowing and doing the simple things that keep us well."

Unless each of us does the obvious thing—like screening doors and windows, eating well balanced meals, protecting ourselves against the weather or immunizing against communicable diseases—no number of doctors and hospitals can keep us well.

Dr. Crockett, who is chairman of the American Medical Association's Council on Rural Health, said that one of the basic aims of the National Rural Health Conference is to enlist the help of every rural resident.

"By improving and preserving the health of the individual," he said, "we can make our communities more healthful and desirable places to live."

The Milwaukee meeting opened on the afternoon of February 24, and continued through Saturday, February 28.

REGIONAL MEETING OF THE AMERICAN COLLEGE OF GASTROENTEROLOGY

A regional meeting of the Southern Region of the American College of Gastroenterology will be held in Memphis, Tenn., on Sunday afternoon,

24 April 1955. The Scientific Session will be held in The Skyway at the Hotel Peabody, commencing at 2:00 P. M., following the semi-annual meeting of the Board of Trustees of the College.

Participating in the program of the Scientific Session will be E. G. Campbell, M. D., Memphis, Tenn.; Jerome S. Levy, M. D., Little Rock, Ark.; Edward A. Marshall, M. D., Cleveland, Ohio; John M. McMahon, M. D., Bessemer, Ala.; James T. Nix, M. D., New Orleans; E. L. Posey, Jr., M. D., Jackson, Miss.; N. E. Rossett, M. D., Memphis, Tenn.; Henry G. Rudner, Sr., M. D., Memphis, Tenn.; L. C. Sanders, M. D., Memphis, Tenn.; S. L. Stephenson, Jr., M. D., Jackson, Miss.; I. Frank Tullis, M. D., Memphis, Tenn.

Members of the medical profession are cordially invited to attend. A copy of the program may be obtained from the Secretary, American College of Gastroenterology, 33 West 60th Street, New York 23, N. Y.

TRUDEAU SCHOOL OF TUBERCULOSIS

Forty-first Annual Session

Despite the closing of the clinical facilities of the Trudeau Sanatorium, the forty-first session of the Trudeau School of Tuberculosis will begin Wednesday, June 1st, and continue to June 29th.

The staff, facilities and skills of the Trudeau organization laboratories, of the various sanatoria in the Saranac Lake area, and of the practising tuberculosis specialists of Saranac Lake will be called upon as in the past to present the program.

The course will cover all aspects of pulmonary tuberculosis and also certain phases of other chronic chest diseases, including those of occupational origin.

The schedule for the 1955 course is in preparation but copies of the program for 1954 are available.

Registrations will be limited and it is suggested that those planning to attend make early application for enrollment.

The tuition is $100, payable to the Trudeau School on or before the opening date, June 1, 1955. A few scholarships are available for those individuals who can qualify.

The Trudeau School of Tuberculosis has been approved for training of veterans under Public Laws and any applicant desiring to obtain veteran's benefits should clear his registration with the Veterans Administration before the session begins.

Applications and more detailed information may be obtained from: Secretary, Trudeau School of Tuberculosis, Box 200, Trudeau, New York.

INTERNATIONAL ACADEMY OF PROCTOLOGY TO MEET IN NEW YORK MARCH 23 - 26

New research in proctology and related fields, as well as the implications of these developments for the general practice of medicine, will be reported at the 7th annual meeting of the International Academy of Proctology, to be held from March 23 through 26 in New York City.

Panel discussions on cancer of the lower intestine and on ulcerative colitis will highlight the Academy's scientific sessions at the Hotel Plaza in New York City on March 23, 25, and 26, and at the Jersey City Medical Center on March 24.

Operating clinics and a symposium on intestinal surgery and related conditions will be given by members of the Jersey City Medical Center. A special group of film demonstrations will be presented in a Visual Education session.

In accordance with its established practice, the Academy extends an invitation to all physicians to attend its sessions, and the American Academy of General Practice will grant credits to its members attending the meeting.

TWENTY-EIGHTH ANNUAL SPRING CONGRESS

The Gill Memorial Eye, Ear and Throat Hospital announces its twenty-eighth annual Spring Congress, to be held in Roanoke, Virginia, April 4-9. All lectures will be held at the Patrick Henry Hotel. Operations and clinical demonstrations will be given at the hospital. Matriculation fee will be $75.00, and further information may be obtained from Dr. E. G. Gill, Box 1789, Roanoke, Virginia.

TESTS SHOW TOBACCO'S EFFECTS ON HEART

New laboratory tests have shown that cigarettes have a definite, immediate effect on the action of the heart in both normal persons and those with heart disease, four physicians said recently.

They recommended in the current (Feb. 12) Journal of the American Medical Association that heart disease patients should quit smoking entirely.

Significant increases in heart rate and blood pressure followed smoking of regular cigarettes by 65 persons tested, including both normal persons and those with coronary disease, according to Drs. Henry I. Russek and Virgil J. Dorset, Staten Island, and Dr. Burton L. Zohman. Brooklyn, all of the U. S. Public Health Service.

Another series of tests on 400 normal persons resulted in abnormal changes among 10 per cent, rising from 5 per cent in the 20-30 year age group to 15 per cent in the 30-40 year group. Dr. Isidore E. Buff, Charleston, W. Va., who made these tests, recommended that disease-free persons whose heart tests show abnormal results following smoking should quit. He could not say whether heart disease eventually would develop in these persons. But he said he felt that evidence so far makes it "highly desirable that these patients stop using tobacco in any form."

WOMAN'S AUXILIARY TO THE LOUISIANA STATE MEDICAL SOCIETY

AUXILIARY MEMBERS START 1955 WITH VIGOROUS INTEREST IN PROJECTS

A recent letter from Mrs. George Turner, president of the Woman's Auxiliary to the American Medical Association contained the thought:

"Another year has borne its record to the skies!
Another year, untried, unproved, before us lies.
We hail with smiles its dawning ray.
How shall we meet its final day?"

In Louisiana members of the Executive Board have completed plans to attend the mid-year session to be held at the Hotel Bentley, in Alexandria, on Thursday, January 27, at 10 A. M. with luncheon at noon and unfinished business during an afternoon meeting. Mrs. M. C. Wiginton, state president, speaks glowingly of reports which have come in from committee chairmen and parish presidents, and in addition to visiting fourteen groups in meeting since October, has found time and enthusiasm to organize three new auxiliaries. When "Emma" visits your group, try to get a look at the calendar which hangs from her "little black book". Both the fulfilled engagements and the "futures" which constitute Emma's year as state president will have an enervating effect as to what can be accomplished when the motivation is strong enough.

OUACHITA PARISH

News sent in by Mrs. Irving J. Wolff from the Ouachita Parish Auxiliary tells of meetings stressing many phases of the auxiliary program. Civil defense has been especially stressed with emphasis laid on the use and benefits of the work and the importance of a well informed public. Legislation concerning the recent regulations governing the nursing profession and the importance they play in a recuperative program formed another focal point for consideration.

This group acted as hostesses during the eighth annual conference of the Louisiana Health Council held in Monroe in November, and held an annual Christmas luncheon in December. Mrs. De Witt T. Milam reported on the activities of the A. M. A. Auxiliary convention held in San Francisco, and informed the membership of the points of her Health, Safety and Mental Health chairmanship. Mrs. Ralph Talbot, local nurse recruitment chairman, reviewed the "Careers in Nursing" aims, and the part the auxiliary plays in this work. The Future Nurses clubs were interpreted to the membership through the film JUGS giving a complete picture of their importance and valuable services to the public.

TANGIPAHOA PARISH

Tangipahoa Parish welcomed home state president member Emma Wiginton with a Christmas party which was a tribute to her personal success and the honors she brought to the local group. Reports on all phases of auxiliary activity were made with particular stress on an increase in *Today's Health* subscriptions secured, Civil Defense Registrations completed, and a new Future Nurses club organized at Hammond High School.

With a small and scattered membership this group is typical of the many auxiliaries throughout Louisiana whose collective work has spelled such progress for projects intergrated with the success of the medical profession.

A beautiful silver tray with a touching inscription of friendship was presented to Mrs. Wiginton and accepted by her with affecting gratitude.

ORLEANS PARISH

Orleans Parish welcomed its state president to its January meeting held January 12, at the Orleans Club with a luncheon open to all members preceding the session. Mrs. Eugene Countiss was chairman of the luncheon, which has now been accepted as an annual event honoring the state president, with Mrs. James Bailey serving as co-chairman. Mrs. George Feldner presided with ease and charm as toastmistress. The invocation was given by Mrs. Edwin R. Guidry and flower arrangements of camellias were prepared under the supervision of Mrs. Esmond Fatter. Out of town guests besides the honoree, Mrs. Wiginton, were Mrs. Henry W. Jolly, Jr., and Mrs. Charles I. Black of Baton Rouge.

Dr. Edgar Hull, newly elected president of the Orleans Parish Medical Society, addressed the group in the auditorium at the meeting which followed. His talk was an analysis of how the medical profession appeared to and was interpreted by laymen, and how the auxiliary could function to shape that interpretation. Dr. Hull used quotations from the Bible interspersed with colloquialisms from modern journalism to stress his points.

Also on the program, prepared and MC'ed by Mrs. John Gooch, was Mrs. Ralph McDonogh, an auxiliary member who has made a hobby of china collections and who with illustrations of her own precious pieces gave an informative and interesting demonstration.

Mrs. Wiginton's talk reviewed briefly the state projects. She managed to add a personal twist to the explanation of each so that the older members were given a new viewpoint and the newer members a thorough insight into how the national and state programs are worked through the individual auxiliary member. Mrs. Wiginton's theme for her year as president, "Widening Horizons to Work, Peace, and Love" is exemplified in her attitude toward the program as a whole and in her interest in personally meeting and talking with each member.

Mazie Adkins Guidry
(Mrs. Edwin R.)
Chairman of Press and Publicity

BOOK REVIEWS

Hypothyroidism: An Essay on Modern Medicine; by Paul Starr, M.D., Springfield, Illinois, Charles C Thomas, 1954, Pp. 127, Price $3.75.

This is a 127 page book in the American Lecture Series by the Chairman of the Department of Medicine in the University of Southern California. It presents the approach, the point of view and the methods of a particular thyroid clinic in dealing with hypothyroidism. It is by no means a systematic exposition of the clinical features of myxedema. Perhaps the main thesis of the author is that there are not infrequently mild degrees of hypothyroidism which are capable of being recognized by modern methods and that treatment of these milder syndromes is of benefit to the patient. This represents a somewhat different opinion from that of Dr. J. H. Means, who has rather emphasized the rarity of milder, intermediate degrees of hypofunction short of classical myxedema. Dr. Starr's book will be useful if it helps to keep minds open and critical on this question. Great stress is placed on protein bound iodine determinations in the evaluation of hypothyroidism and the PBI level is much used by this group in estimating therapy requirements as well. Here one cannot but wonder if the laboratory tail is not wagging the clinical dog.

The book should be of interest to internists as a provocative presentation of a minority view on an unsettled question. It may provide comfort to those who have been accustomed to administer thyroid substance on empirical grounds and give pause to those who have been ready to question the use of thyroid substance in the absence of myxedema.

E. B. Ferguson, M. D.

Understanding the Japanese Mind; by James Clark Moloney, M.D., New York, N.Y., Philosophical Library, 1954, Pp. 252, $3.50.

The title of the book is somewhat misleading, for the author does not elucidate a great deal about the Japanese mentality. He does depict in a well documented manner such aspects of Japanese thinking that are clearly in conflict with the basic tenets of Freudian psychoanalysis, which was the product of Viennese late 19th century culture.

His main point is to use Western psychoanalytic techniques and principles as devices to gain insight into Japanese thought in terms of the twists and metamorphoses inflicted by that culture. It becomes evident, as Moloney well points out, that the Japanese culture is today a mimicry of the West festooned upon its centuries-old nationalism. Japan is a unity with its subjects and products fused into it.

Thus the process of "disindividualism" occurs from birth on, ultimately culminating in the "coeval" state of utter nationalism. This conclusion is supported by historical and philosophical sources. The Japanese have taken the psychoanalytic concepts that give impetus to individuality and altered them (Moloney calls this syncretism) to their opposite of producing union with the coeval state of being a true Japanese.

For the psychiatric reader the book has some appeals, as when Dr. Moloney describes the psychotics and their care in Japan. One might pause more than seldom to take issue with some of his theoretical concepts of psychodynamics, such as skin-ego. It might, however, seem to the general medical reader that the author has spent a great deal of space without clarifying the Japanese mind beyond its immediate reactions to Freudian psychoanalysis.

Irvin A. Kraft, M. D.

An Atlas of Congenital Anomalies of the Heart and Great Vessels; by Jesse E. Edwards and others, Springfield, Illinois, Charles C Thomas, 1954, Pp. 202, Price $13.50.

The organization and presentation of this material is precisely as the name implies—as an atlas. The pathologic material and roentgenograms reproduce very well. Most of the defects are illustrated by a diagram indicating disturbed hemodynamics. However, the clinical data presented is inadequate to allow this atlas to be used widely for solution of clinical problems. The variations in history, physical examination, electrocardiograms, roentgenograms, and special studies such as angiocardiograms and cardiac catheterization are inadequately treated if this volume is to be used to help solve clinical problems of congenital cardiac disease. As an atlas it is well done but as a source of help to the clinician it leaves much to be answered by other books.

Clarence T. Ray, M. D.

PUBLICATIONS RECEIVED

Lea & Febiger, Phila.: Animal Agents and Vectors of Human Disease, by Ernest C. Faust, M. D.

J. B. Lippincott Co., Phila.: Regional Enteritis, by Frederick F. Boyce, M. D.

W. B. Saunders Co., Phila.: Reactions with Drug Therapy, by Harry L. Alexander, M. D.; Peripheral Vascular Diseases, by Edgar V. Allen, M. D., Nelson W. Barker, M. D., and Edgar A. Hines, Jr., M. D. (2nd Edit.).

Charles C Thomas, Publisher, Springfield, Ill.: Normal Labor, by Leroy A. Calkins, M. D.; Regional Allergy of the United States, Canada, Mexico & Cuba, by Max Samter, M. D., and Oren C. Durham, Chief Botanist.

University of Florida Press, Gainesville: Florida's Hospitals and Nurses, by John M. Maclachlan, Ph. D.